Research Article

Associated Factors of Wasting among Infants and Young Children (IYC) in Kuyu District, Northern Oromia, Ethiopia

Tamiru Yazew and Agama Daba

Department of Food and Nutritional Sciences, Wollega University, Shambu, Ethiopia

Correspondence should be addressed to Tamiru Yazew; tamiruyazew2012@gmail.com

Received 2 April 2022; Accepted 20 June 2022; Published 30 June 2022

Academic Editor: Dorota Formanowicz

Copyright © 2022 Tamiru Yazew and Agama Daba. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Wasting among infants and young children in underdeveloped countries including Ethiopia is one of the most serious public health issues. Therefore, this study was designed to assess the magnitude of wasting and the variables that associate with it among infants and young children in the Kuyu district of Northern Oromia, Ethiopia. A community-based cross-sectional study of 612 infants and young children aged 6-23 months was conducted. To select eligible infants and young children from each family in the Kuyu district, a multilevel sampling approach was used. The amount and determinants related to wasting were investigated using the Statistical Package for Social Sciences (SPSS) version 20.0. In the study area, 14.1% of infants and young children were found to be wasting. Maternal educational status (AOR = 1.8, 95% CI; 1.01, 4.32), diarrhoea (AOR = 2.3, 95% CI; 1.98, 4.56), exclusive breastfeeding (AOR = 2.46, 95% CI, 1.4, 4.58), antenatal care visits (AOR = 2.21; 95% CI, 1.32, 3.48), and wealth index (AOR = 1.6, 95% CI; 1.07, 4.47) were significantly associated with wasting. According to the findings of this study, mother educational status, the occurrence of diarrhoea, exclusive breastfeeding, antenatal care visits, and wealth index have an impact on infants and young children’s wasting. Therefore, to lower the burden of wasting among infants and young children in the study, community-based schooling and nutritional interventions are urgently needed.

1. Introduction

Wasting is one of the world’s most difficult issues, affecting mostly underprivileged and disadvantaged areas [1], and it causes disease and mortality in infants and young children [2]. Its high occurrence has been shown to have negative consequences on a child’s survival, growth, and cognitive development [3]. In developing countries, it is a well-known indicator of infant and young child nutrition [4]. Worldwide, 51 million infants and young children are expected to be underweight for their height [5]. This prevalence was estimated to be 12.9%, with almost 90% of people residing in low- and middle-income countries [6].

While worldwide wasting in infants and young children is decreasing, Africa estimates that 10% of infants and young children are moderate to severely wasted [7]. Despite Ethiopia’s initiatives to fight poverty and food insecurity, many rural areas are still exposed to food insecurity and wasting due to seasonal factors [8, 9]. According to a study conducted in the southern region of Ethiopia, wasting affects 14.6% of infants and young children [10]. A review and meta-analysis conducted in Ethiopia estimated that the prevalence of wasting among infants and young children was 15% [11]. Wasting has also been observed to be prevalent (16.2%) among infants and young children in the Afar regional state of Ethiopia [12]. Furthermore, a wasting prevalence of 7% was observed in the Ethiopian Mini Demographic and Health Survey in 2016 [13].

Several Ethiopian study findings have found that socioeconomic and demographic variables influence the prevalence of wasting among infants and young children [14, 15]. Infant and young child wasting is linked to poor food intake, housing, and water quality [14]. Moreover, birth order [15, 16], a lack of screening [17, 18], and diarrhoea [12, 19–21] have all been linked to wasting. The gender of infants and young children and their age are characterized as variables that influence wasting [17, 22, 23]. Wasting is also linked to educational status [24, 25], occupational status
Furthermore, the nutritional condition of the parents [6] and the family socioeconomic status [17, 31, 32] are the most important factors related to wasting among infants and young children in low- and middle-income countries. In Ethiopia, the number of children under the age of five, the duration of nursing, and the age at which supplemental feeding began were all significant variables associated with wasting. [33]. According to previous studies conducted, family size is a significant factor related to wasting among childhood [24, 27, 29].

Despite the fact that Oromia is one of Ethiopia’s food-producing areas, the frequency of wasting among infants and young children were found to be significant at 6.9% [33]. Infants and young children from food-insecure regions have a significant prevalence (27%) of this condition [34]. As a result, Ethiopia’s government works to improve the country’s socioeconomic condition; however, socioeconomic variables and wasting are more complicated [35].

According to the Ministry of Labor and Social Affairs, the Productive Safety Net Program (PSNP) of a country is intended to eliminate poverty and bridge the food gap for vulnerable areas, and it encompasses all food security measures within the social protection policy [36]. Despite the fact that the program incorporates a variety of strategies to minimize food insecurity and enhance the nutritional health of infants and young children in the region, it has not yet reached its full potential due to disparities in resource distribution among communities.

The following are the reasons why the Kuyu district was chosen as the study area: (1) Kuyu district is known across the district for its heavy rainfall, low agricultural production, and low soil fertility and has received food assistance and food shortages from the PSNP for many years [37]. (2) The Kuyu district has a higher proportion of food-insecure rural residents who rely on the Productivity Safety Net Program for food or cash in exchange for labor [38]. (3) Several previous cross-sectional studies encompassed all potential food security locations and districts that did not require food assistance from the government or nongovernmental organizations. (4) Previous research findings from various locations and districts in Ethiopia were outdated, and they may no longer reflect the current state of wasting and related variables among infants and young children in the study area. (5) This research was conducted in a rural setting, where many rural households in the study area have been experiencing food insecurity and malnutrition for more than a decade. (6) In the study area, no research into the scope of wasting and its associated factors has been conducted to aid the most vulnerable group of people: infants and young children.

Thus, the findings of this study would bring up-to-date information on the nutritional status of infants and young children in the district’s most food-insecure area. Taking the aforementioned rationales into mind, this study was therefore carried out in the Kuyu district of northern Oromia, Ethiopia, to assess the prevalence of wasting and related factors among infants and young children aged 6-23 months.

2. Material and Methods

2.1. Study Setup, Design, and Duration. The Kuyu district was chosen as a research site because it includes more food-insecure rural people who rely on the Productivity Safety Net Program for assistance. As a result, this community-based observational study was undertaken from July 12 to July 28, 2020, following the techniques of prior investigations [39]. The baseline population was all 6-23-month infants and young children found in the Kuyu district, while the study population was all 6-23-month infants and young children selected from the specified Kebeles. 6-23-month infants and young children and a mother from Kebele were involved in the research. The study excluded infants and young children less than six and above 23 months as well as with birth abnormalities, chronic diseases, and mothers who did not want to participate.

2.2. Determination of the Sample Size and Procedure. The following assumptions were made: 95% CI, 80% performance, P1 = 0.18; poor eating habits in children under 5 years [33] and 10% expected good eating habits in children under 5 years (P2 = 0.08). Therefore, the sample size was 392, the nonresponse rate was 5%, and the design effect was 612.

The Kuyu district area was carefully chosen as the research location since previous studies had not investigated the prevalence and critical characteristics related to wasting in infants and young children aged 6-23 months. As a result, the findings of this study can help Ethiopians with nutrition and nutrition-sensitive agricultural policy. In this study, a multilevel sampling method was used. Using the size-proportional likelihood technique, four Kebeles (Sombo Cheka, Halilu Cheri, Dubena Agalo, and Wuyye Gose) were chosen for the research among the 20 district Kebeles. The district health department gathered data on infants and young children aged 6-23 months. In four Kebeles households (Sombo Cheka, Halilu Cheri, Dubena Agalo, and Wuyye Gose), the total number of infants and young children aged 6-23 months were 448, 712, 775, and 865, respectively. Then, in Kebele, the method of selecting a 6-23-month infant and young child from each household was chosen. Finally, each Kebele infant and young child were chosen at random from each category’s list of households. If a household had more than one mother with infants and young children aged 6-23 months, only one mother was chosen by lot, and the same procedure was used if the household had more than one infant and young child who met the selection criteria.

2.3. Data Collection Methods and Quality Assurance. Wealth index, age of the infant and young child and mother, sex of the infant and young child, head of household, size of family in household, occupation, level of education, and ethnicity were all surveyed sociodemographic data. The children’s weight and height were measured according to WHO guidelines [40]. A local event was used to compute the child’s age in months from the date of birth to the date of data collection. Moderately pressing both feet for 3 seconds was also
used to detect edema. The data collector consulted the supervisor for confirmation, and a referral to the nearest medical facility if the depression remained flat on both feet for a few seconds.

To achieve the study’s main goals and reduce bias during data collection, the following measures were considered: first, data were collected using a structured questionnaire adapted from related studies. The questionnaire was written in English and then translated into a local language (Afaan Oromo) with few changes based on previous research. It was then checked for consistency by having it translated into English by experts in various languages. The survey was then pretested on 5% of the sample before we started collecting data. We made the necessary corrections and changes to the terms and format of the questionnaire based on the feedback. Third, data was gathered from 10 registered nurses and three public health/nutrition specialists and researchers after a three-day training session for data collectors and supervisors. The principal investigator in charge of the study double-checked the questionnaire’s accuracy at the end of each day.

2.4. Data Analysis. SPSS version 20.0 was used to encode, enter, and analyze the data. All variables were subjected to descriptive statistical analysis to look for outliers, data consistency, and missing values. A one-sample Kolmogorov-Smirnov test was used to check the normality of continuous variables. The WHO Anthro program version 3.2.2 was used to generate infant and young child height and weight from WHO growth standards. If the z-scores for each index were less than 2, the child was considered wasted. At a P value of 0.05, a logistic regression analysis was used to identify the factor linked to wasting. Finally, AOR was calculated at a 95% confidence level.

2.5. Ethics and Consent. The Wollega University Food and Nutritional Sciences Institutional Review Board Committee (IRBC) provided ethical approval with Ref No. WuIRBC-0789/2020. The study’s purpose was communicated to officials from the Kuyu City Public Health Administration, who granted approval and assistance. All study participants were informed about the study’s purpose, and written informed consent was obtained. The responses were coded to keep them private. Finally, the mothers and infants and young children with severe wasting received nutritional and health information in preparation for further treatment.

3. Results

3.1. Sociodemographic Characteristics of Survey Participants. The Oromo ethnic group was represented by 604 mothers (98.7%). About 490 (80.1%) and 304 (49.7%) of the participants were married and illiterate, respectively (Table 1). Moreover, half of the mothers (51.6%), were farmers. Two-thirds of the participants (67.5%) had a family of more than five members. In addition, 326 (53.3%), 163 (26.6%), and 123 (20.1%) households were classed as having low, medium, or high wealth index, respectively.

Table 1: Socioeconomic and demographic characteristics.

| Variables                        | Frequency (no.) | Percent (%) |
|----------------------------------|-----------------|-------------|
| Age of the mothers (years)       |                 |             |
| ≤24                              | 130             | 21.24       |
| 25-29                            | 417             | 68.14       |
| ≥30                              |                 |             |
| Educational level of respondent  |                 |             |
| Illiterate                       | 304             | 49.7        |
| Able to read and write           | 126             | 20.6        |
| Elementary school and above      | 182             | 29.7        |
| Marital status of the respondent  |                 |             |
| Married                          | 490             | 80.1        |
| Divorced                         | 53              | 8.7         |
| Others (single, widowed)         | 69              | 11.3        |
| Occupational status of the respondent |           |             |
| Housewife only                   | 91              | 14.9        |
| Farmer                           | 316             | 51.6        |
| Others (merchant, daily laborer) | 205             | 33.5        |
| Ethnicity of respondent          |                 |             |
| Oromo                            | 604             | 98.7        |
| Others (Amhara, Tigre)           | 8               | 1.3         |
| Family size in the household     |                 |             |
| <5                               | 199             | 32.5        |
| ≥5                               | 413             | 67.5        |
| Wealth index                     |                 |             |
| Low                              | 326             | 53.3        |
| Middle                           | 163             | 26.6        |
| High                             | 123             | 20.1        |

3.2. Child Characteristics. About 30.6% of children are born at home, while 69.4% are born in hospitals. Almost half of the infants and young children (48.2%) were not immunized (Table 2). In addition, 17.3% and 7.7% of the infants and young children suffered diarrhea and edema, respectively.

3.3. Child Feeding and Caring Characteristics. According to the findings, about 209 (34.2%) mothers began nursing within one hour, and 403 (65.8%) mothers began breastfeeding one day later (Table 3). More than half of the 612 mothers (64.2%) did not feed their infants and young children. Milk is given to infants before colostrum feeding, which accounts for 86.6% of the time. Furthermore, two-thirds (65%) of the mothers did not just breastfeed their infants and young children but also fed them other meals. Approximately 43% and 68.9% of infants and young children, respectively, had less than recommended nutritional diversity and meal frequency (Table 3).

3.4. Maternal Characteristics. In this study, 174 (28.4%) mothers gave birth to their first child before the age of 18 (Table 4). The proportion of mothers who did not take part
in the check-ups was 68.9%. The majority of mothers who participated in this study were unaware of their children’s eating habits (74.2%).

### Table 2: Child characteristics.

| Variables                  | Frequency (no.) | Percent (%) |
|----------------------------|-----------------|-------------|
| Sex of the study child     |                 |             |
| Male                       | 324             | 52.9        |
| Female                     | 288             | 47.1        |
| Age of the child           |                 |             |
| 6-12                       | 406             | 66.3        |
| 13-23                      | 206             | 33.7        |
| Place of delivery          |                 |             |
| Home                       | 187             | 30.6        |
| Health institution         | 425             | 69.4        |
| Immunization               |                 |             |
| Yes                        | 317             | 51.8        |
| No                         | 295             | 48.2        |
| Diarrhoea                  |                 |             |
| Yes                        | 106             | 17.3        |
| No                         | 506             | 82.7        |
| Edema                      |                 |             |
| Yes                        | 47              | 7.7         |
| No                         | 565             | 92.3        |

### Table 3: Child feeding and caring characteristics.

| Variables                  | Frequency (no.) | Percent (%) |
|----------------------------|-----------------|-------------|
| Time of breastfeeding      |                 |             |
| Within one hour            | 209             | 34.2        |
| After one day              | 403             | 65.8        |
| Colostrum’s given          |                 |             |
| Yes                        | 219             | 35.8        |
| No                         | 393             | 64.2        |
| Pre-lactation food given   |                 |             |
| Milk                       | 530             | 86.6        |
| Butter                     | 69              | 11.3        |
| Water                      | 13              | 2.1         |
| Exclusively breastfeeding   |                 |             |
| <6 months                  | 398             | 65          |
| ≥6 months                  | 214             | 35          |
| Complementary feeding      |                 |             |
| Before six months          | 311             | 50.8        |
| At six months              | 95              | 15.5        |
| After months               | 206             | 33.7        |
| Dietary diversity          |                 |             |
| <3                         | 263             | 43          |
| ≥4                         | 349             | 57          |
| Child meal frequency       |                 |             |
| ≥4                         | 191             | 31.1        |
| ≤3                         | 421             | 68.9        |

### Table 4: Maternal characteristics.

| Variables                  | Frequency (no.) | Percent (%) |
|----------------------------|-----------------|-------------|
| Age at first birth (in years) |                 |             |
| <18                        | 174             | 28.4        |
| 18-28                      | 438             | 71.6        |
| Antenatal care visits      |                 |             |
| Yes                        | 191             | 31.1        |
| No                         | 421             | 68.9        |
| Knowledge about feeding practices |             |             |
| Yes                        | 158             | 25.8        |
| No                         | 454             | 74.2        |
| Hand washing materials     |                 |             |
| Soap                       | 213             | 34.8        |
| Water only                 | 399             | 65.2        |

### Table 5: Environmental condition.

| Variables                  | Frequency (no.) | Percent (%) |
|----------------------------|-----------------|-------------|
| Source of drinking water   |                 |             |
| Protected                  | 125             | 20.4        |
| Unprotected                | 487             | 79.6        |
| Presence of latrine        |                 |             |
| Yes                        | 117             | 19.1        |
| No                         | 495             | 80.9        |
| Separate kitchen           |                 |             |
| Yes                        | 262             | 42.8        |
| No                         | 350             | 57.2        |
| Solid waste disposal       |                 |             |
| Open                       | 234             | 38.2        |
| Private                    | 173             | 28.3        |
| Common                     | 205             | 33.5        |

### Table 6: Prevalence of wasting.

| Undernutrition (wasting)   | Frequency (no.) | Percent (%) |
|----------------------------|-----------------|-------------|
| Normal                     | 526             | 85.9        |
| Wasted                     | 86              | 14.1        |

3.5. **Environmental Condition.** The majority of mothers in the study area (79.6%) used unprotected drinking water (Table 5). Of the 612 mothers, 80.9% and 57.2%, respectively, had no toilet or separate kitchen. In addition, 234 (38.2%) mothers used open land for waste disposal.

3.6. **Prevalence of Wasting.** The current study showed that the prevalence of wasting among infants and young children aged 6-23 months in the study area was 14.1% (Table 6).

3.7. **Selected Associated Factors of Wasting.** Multivariate analysis revealed that maternal upbringing, breastfeeding, antenatal visits, and wealth index are factors associated with child wasting in the study area (Table 7). The results showed that those infants and young children from illiterate mothers...
Table 7: Selected associated factors of wasting.

| Variables                      | COR (95% CI)       | Odds ratio | AOR (95% CI) |
|-------------------------------|--------------------|------------|--------------|
| Mother’s educational status   |                    |            |              |
| Illiterate                    | 2.1 (1.9-7.4)*     | 1.8 (1.01-4.32)** |              |
| Able to read and write        | 1.2 (1.3-5.42)*    | 1.23 (0.65-3.12) |              |
| Elementary school and above   | 1.0                | 1.0        |              |
| Diarrhoea                     |                    |            |              |
| Yes                           | 1.24 (2.3-11.1)*   | 2.3 (1.98-4.56)** |              |
| No                            | 1.0                | 1.0        |              |
| Exclusively breastfeeding      |                    |            |              |
| Yes                           | 1.0                | 1.0        |              |
| No                            | 1.85 (1.04-3.67)*  | 2.46 (1.40-4.58)** |              |
| Antenatal care visits         |                    |            |              |
| Yes                           | 1.0                | 1.0        |              |
| No                            | 1.26 (1.25-1.93)*  | 2.21 (1.32-3.48)** |              |
| Wealth index                  |                    |            |              |
| High                          | 1.0                | 1.0        |              |
| Middle                        | 1.04 (1.05-2.14)*  | 1.12 (0.98-3.45) |              |
| Low                           | 1.40 (1.02-3.81)*  | 1.66 (1.07-4.47)** |              |

*P value < 0.25 in the bivariate analysis and **P value < 0.05 in the multivariate analysis and 1 = References.

(AOR = 1.8; 95% CI, 1.01-4.32), who had diarrhoea (AOR = 2.3; 95% CI, 1.98-4.56), and who had lack of exclusive breastfeeding (AOR = 2.46; 95% CI, 1.4-4.58) more were wasted than that of the reference. Similarly, the odds ratio for infant and young child wasting was higher in mothers who did not attend antenatal care visits (AOR = 2.21; 95% CI, 1.32-3.48) and had low wealth status (AOR = 1.66; 95% CI, 1.07-4.47).

4. Discussion

According to the findings of this study, the prevalence of infant and young child wasting in the study area was greater than in Ethiopia [41–43]. Other investigations conducted in Pakistan [20] and Ethiopia [22, 23, 44] found it to be lower. Differences in the quality of treatment, the duration of data collection, the disciplines of study, and socioeconomic inequalities in the field of study might all be factors in this disparity.

Children born from illiterate mothers were 1.8 times more likely to have wasting than those infants and young children from educated mothers. This finding was supported by research from Ethiopia [23, 44] and Burkina Faso [45]. This might be because informed women are better able to comprehend nutrition and health information, allowing them to enhance their infant’s and children’s nutritional status. Infants and young children who had diarrhoea throughout the trial were 2.3 times more likely to be wasted than those who did not have diarrhoea. This conclusion was supported by research from Burkina Faso [45] and Ethiopia [20, 46]. This might be due to the fact that diarrhoea is a direct cause of the child’s nutritional issues.

In this study, nonbreastfed infants and young children were 2.46 times more likely to be wasted than breastfed. Other investigations conducted in Nigeria [47] and Indonesia [48] corroborated this finding. This is assumed to be due to the fact that breastfeeding delivers all of the nutrients required for appropriate growth and intellectual development, which might have an influence on a child’s health and nutrition. Furthermore, mothers who did not get antenatal check-ups (ANC) had 2.21 times the number of wasted infants and young children than those mothers who did it. The findings of this investigation were similar to those reported in Ethiopia [17] and India [19]. This might be due to the fact that ANC visits serve to reduce threats to a child’s health and nutritional condition.

According to a multivariate analysis of this study, infants and young children from low-income families are 1.66 times more likely to be wasted than infants and young children from high-income families. These findings are in line with previous studies [49, 50]. Similar findings have been found in Ethiopia, suggesting that low socioeconomic level is a role in the accumulation of garbage [32]. This might be because low-income families are unable to provide a healthy diet for their infants and young children due to budgetary constraints.

4.1. Limitations of the Study. Because the study was done over a single time period, it is possible that the real nutritional status of infants and early children was not captured. It was also cross-sectional research; therefore, no cause-and-effect link between the predictors and the outcome variables could be established. The outcomes of this study might be influenced by recall bias during the interview and anthropometric measurement problems.
4.2. Implication of the Study. This study was a community-based approach, in which study subjects were randomly selected from the targeted population. The sample size was calculated using a single population formula. This could be representative and may be made possible generalization to the target communities in the study area. Moreover, a pretest (5%) was conducted before the actual data collection began.

5. Conclusion

The current study found that the frequency of wasting among infants and young children aged 6-23 months was significant in the Kuyu area of central Oromia, Ethiopia. According to this study, the key indicators linked to infants and young children wasting include maternal/caregiver educational status, diarrhoea, exclusive breastfeeding, prenatal visits, and wealth index. Therefore, nutrition and health-based education should be encouraged in order to enhance awareness and minimize the problem of wasting among infants and young children and improve household economic status.

Data Availability

Data to support the findings of this study is available on reasonable request from the corresponding author.

Conflicts of Interest

The author declares that there are no conflicts of interest.

Authors’ Contributions

Tamiru Yazew and Agama Daba contributed equally to this work.

Acknowledgments

The authors would like to thank Wollega University, Research and Innovation Technology, for their support. The authors would also like to thank all data collectors, supervisors, and study participants of the study area.

References

[1] W. G. Berra, “Knowledge, Perception and practice of mothers/ caretakers and Family’s regarding child nutrition (under 5 years of age) in Nekemte Town, Ethiopia,” Science, Technology, and Arts Research Journal, vol. 2, no. 4, pp. 78–86, 2014.
[2] J. Acharya, E. van Teijlingen, J. Murphy, and M. Hind, “Study on nutritional problems in preschool-aged children of Kaski district of Nepal,” Journal of Multidisciplinary Research in Healthcare, vol. 1, no. 2, pp. 97–118, 2015.
[3] K. Takele, “Semi-parametric analysis of children’s nutritional status in Ethiopia,” International Journal of Statistics and Applications, vol. 3, no. 5, pp. 141–154, 2013.
[4] T. Khara, M. Mwangome, M. Ngari, and C. Dolan, “Children concurrently wasted and stunted: a meta-analysis of prevalence data of children 6–59 months from 84 countries,” Maternal & Child Nutrition, vol. 14, no. 2, article e12516, 2018.
[5] World Health Organization (WHO), Levels and trends in child malnutrition: UNICEF, WHO, 2020, https://www.who.int/publications/i/item/9789240003576.
[6] Z. Li, R. Kim, S. Vollmer, and S. V. Subramanian, “Factors associated with child stunting, wasting, and underweight in 35 low- and middle-income countries,” JAMA Network Open, vol. 3, no. 4, pp. e200336–e200338, 2020.
[7] L. Haddad, E. Achadi, M. Bendech et al., “The Global Nutrition Report 2014: actions and accountability to accelerate the world’s progress on nutrition,” The Journal of Nutrition, vol. 145, no. 4, pp. 663–671, 2015.
[8] S. Coll-Black, D. O. Gilligan, H. John, K. Neha, S. Alemayehu, and W. William, “10 Targeting Food Security Interventions in Ethiopia: The Productive Safety Net, Food and agriculture in Ethiopia: Progress and policy challenges, vol. 74, p. 280, 2012.
[9] Ministry of Agriculture, Ethiopian Ministry of Agriculture: Productive Safety Net Programme Phase IV Programme Implementation Manual, MOA, 2014, Version 1.0 was first released in December.
[10] B. Betumbo, T. Ejajo, F. Alemseged, and D. Massa, “Household food insecurity and its association with nutritional status of children 6–59 months of age in east Badawacho District, South Ethiopia,” Journal of Environmental and Public Health, vol. 2017, Article ID 6373595, 17 pages, 2017.
[11] A. Abdulahi, S. Shab-Bidar, S. Rezaei, and K. Djafarian, “Nutritional status of under five children in Ethiopia: a systematic review and meta-analysis,” Ethiopian Journal of Health Sciences, vol. 27, no. 2, pp. 175–188, 2017.
[12] A. Gebre, P. S. Reddy, A. Mulugeta, Y. Sedik, and M. Kahsay, “Prevalence of malnutrition and associated factors among under-five children in pastoral communities of Afar Regional State, Northeast Ethiopia: a community-based cross-sectional study,” Journal of Nutrition and Metabolism, vol. 2019, Article ID 9187609, 13 pages, 2019.
[13] Central Statistical Agency, Central Statistical Agency of Ethiopia. Ethiopian mini demographic and health survey, Ethiopian Public Health Institute, Federal Ministry of Health, Addis Ababa, 2019.
[14] H. Fekadu, A. Adeba, S. Garoma, and W. Berra, “Prevalences of wasting and its associated factors of children among 6-59 months age in Guto Gida District, Oromia Regional State, Ethiopia,” Journal of Food Process Technology, vol. 5, no. 289, p. 2, 2014.
[15] N. Endris, H. Asefa, and L. Dube, “Prevalence of malnutrition and associated factors among children in rural Ethiopia,” BioMed Research International, vol. 2017, 6 pages, 2017.
[16] E. Mulu and B. Mengistie, “Household food insecurity and its association with nutritional status of under five children in Sekela District, Western Ethiopia: a comparative cross-sectional study,” BMC Nutrition, vol. 3, no. 1, pp. 1–9, 2017.
[17] B. T. Woldeamanuel and T. T. Tesfaye, “Risk factors associated with under-five stunting, wasting, and underweight based on Ethiopian demographic health survey datasets in Tigray region, Ethiopia,” Journal of Nutrition and Metabolism, vol. 2019, Article ID 6967170, 11 pages, 2019.
[18] M. M. Menalu, A. D. Bayleyegn, M. A. Tizazu, and N. S. Amare, “Assessment of prevalence and factors associated with malnutrition among under-five children in Debre Berhan town, Ethiopia,” International Journal of General Medicine, vol. 14, pp. 1683–1697, 2021.
[19] S. Chawla, V. Gupta, A. Singh et al., "Undernutrition and associated factors among children 1-5 years of age in rural area of Haryana, India: a community based cross-sectional study," *Journal of Family Medicine and Primary Care*, vol. 9, no. 8, pp. 4240–4246, 2020.

[20] T. Derso, A. Tariku, G. A. Biks, and M. M. Wassie, "Stunting, wasting and associated factors among children aged 6–24 months in Dabat health and demographic surveillance system site: a community based cross-sectional study in Ethiopia," *BMJ Pediatrics*, vol. 17, no. 1, pp. 1–9, 2017.

[21] T. Yazew, "Are dietary diversity and food insecurity associated with nutritional status of children in Western Oromia, Ethiopia?", *Journal of Biology and Todays World*, vol. 10, no. 6, pp. 001–007, 2021.

[22] S. Dires and M. Mareg, "The magnitude of wasting and associated factors among children aged 2-5 years in southern Ethiopia: a cross-sectional study," *BioMed Research International*, vol. 2021, Article ID 6645996, 11 pages, 2021.

[23] G. A. Odei Obeng-Amoako, C. A. S. Karamagi, J. Nangendo et al., "Factors associated with concurrent wasting and stunting among children 6-59 months in Karamoja, Uganda," *Maternal and Child Nutrition*, vol. 17, no. 1, article e13074, 2021.

[24] D. S. Gemechu, Y. Worku, A. Alemu, and U. Gerema, "Determinants of severe acute malnutrition among children aged 6–59 months in the pastoral community of Liban District, Guji Zone, Oromia Regional State, Southeastern Ethiopia: a case-control study," *Journal of Nutritional Science*, vol. 10, p. e101, 2021.

[25] S. T. Acedokun and S. Yaya, "Factors associated with adverse nutritional status of children in sub-Saharan Africa: evidence from the Demographic and Health Surveys from 31 countries," *Maternal and Child Nutrition*, vol. 17, no. 3, article e13198, 2021.

[26] D. Zewdu and Y. H. Handiso, "Under-nutrition of 2–5 years old children and associated factor among employed and unemployed women: comparative cross-sectional study," *Cogent Food and Agriculture*, vol. 6, no. 1, p. 1801215, 2020.

[27] U. Ghimire, B. K. Aryal, A. K. Gupta, and S. Sapkota, "Severe acute malnutrition and its associated factors among children under-five years: a facility-based cross-sectional study," *BMJ Pediatrics*, vol. 20, no. 1, pp. 1–9, 2020.

[28] M. Belayneh, E. Loha, and B. Lindtjørn, "Seasonal variation of household food insecurity and household dietary diversity on wasting and stunting among young children in a drought-prone area in South Ethiopia: a cohort study," *Ecology of Food and Nutrition*, vol. 60, no. 1, pp. 44–69, 2021.

[29] K. Bidira, D. Tamiru, and T. Belachew, "Anthropometric failures and its associated factors among preschool-aged children in a rural community in Southwest Ethiopia," *PLoS One*, vol. 16, no. 11, article e0260368, 2021.

[30] B. Megersa, A. Haile, and U. Kitron, *Effects of dietary and health factors on nutritional status of children in pastoral settings in Borana, southern Ethiopia, August-October 2015*, Arch Public Health. 2021.

[31] S. Feleke, G. Egata, F. Mesfin, G. Yilak, and A. Molla, "Under-nutrition and associated factors in orphan children aged 6-59 months in Gambella Southwest, Ethiopia: a community-based cross-sectional study," *BMJ Open*, vol. 11, no. 7, article e045892, 2021.

[32] G. W. Kassie and D. L. Workie, "Determinants of under-nutrition among children under five years of age in Ethiopia," *BMJ Pediatrics*, vol. 20, no. 1, pp. 1–11, 2020.

[33] A. N. Ihab, A. J. Rohana, W. W. Manan, W. W. Suriati, M. S. Zalilah, and A. M. Rusli, "Assessment of food insecurity and nutritional outcomes in Bachok, Kelantan," *Journal of Nutrition and Food Sciences*, vol. 5, no. 3, p. 1, 2015.

[34] A. G. Wasiahun, T. A. Dejene, M. Teferi et al., "Risk factors for diarrhoea and malnutrition among children under the age of 5 years in the Tigray Region of Northern Ethiopia," *PLoS One*, vol. 13, no. 11, article e0207743, 2018.

[35] Central Statistical Agency and ICF International, "Ethiopia demographic and health survey 2011," in Addis Ababa, Ethiopia, and Calverton, Maryland, USA, p. 430, Central Statistical Agency and ICF International, 2012.

[36] J. Hoddinott, G. Berhane, D. O. Gilligan, N. Kumar, and A. Seyoum Taffesse, "The impact of Ethiopia’s Productive Safety Net Programme and related transfers on agricultural productivity," *Journal of African Economies*, vol. 21, no. 5, pp. 761–786, 2012.

[37] World Bank, "Ethiopia’s Productive Safety Net Program (PSNP): integrating disaster and climate risk management case study," *Working Paper*, vol. 80622, 2013.

[38] N. Fekadu and M. Ignatius, "Challenges of Productive Safety Net Program implementation at local level: the case of Kuyu Woreda, North Shewa Zone, Oromia Region, Ethiopia," *Journal of Sustainable Development in Africa*, vol. 11, no. 1, pp. 248–267, 2009.

[39] Y. Tamiru and D. Agama, "Dietary diversity, household food security and nutritional status of children (aged 6–23 months) in Jima Geneti district, Oromia, Ethiopia," *EC Nutrition*, vol. 15, no. 10, pp. 50–65, 2020.

[40] M. de Onis, A. W. Onyango, E. Borghi, C. Garza, H. Yang, and WHO Multicentre Growth Reference Study Group, "Comparison of the World Health Organization (WHO) Child Growth Standards and the National Center for Health Statistics/WHO international growth reference: implications for child health programmes," *Public Health Nutrition*, vol. 9, no. 7, pp. 942–947, 2006.

[41] H. K. Kasaye, F. T. Bobo, M. T. Yilma, and M. Woldie, "Poor nutrition for under-five children from poor households in Ethiopia: evidence from 2016 Demographic and Health Survey," *PLoS One*, vol. 14, no. 12, article e0225996, 2019.

[42] H. Yisak and A. Ewunetei, "Prevalence of malnutrition and its associated factors among under five children at debretabor town north-west Ethiopia," *Archives of Community Medicine and Public Health*, vol. 6, no. 2, pp. 213–222, 2020.

[43] D. Ahmad, M. Afzal, and A. Imtiaz, "Effect of socioeconomic factors on malnutrition among children in Pakistan," *Future Business Journal*, vol. 6, no. 1, pp. 1–11, 2020.

[44] A. K. Teklie, A. A. Woya, and G. W. Basha, "Prevalence of malnutrition and associated factors among under-five children in Ethiopia: evidence from the 2016 Ethiopia demographic and health survey," *BMJ Research Notes*, vol. 12, no. 1, pp. 1–6, 2019.

[45] G. G. Poda, C. Y. Hsu, and J. C. Chao, "Factors associated with malnutrition among children< 5 years old in Burkina Faso: evidence from the demographic and health surveys IV 2010," *International Journal for Quality in Health Care*, vol. 29, no. 7, pp. 901–908, 2017.

[46] A. Motbainor and A. Taye, "Wasting in under-five children is significantly varied between rice producing and non-producing households of Libokemkem district, Amhara region, Ethiopia," *BMJ Pediatrics*, vol. 19, no. 1, pp. 1–11, 2019.
[47] D. Kejo, T. C. Mosha, P. Petrucka, H. Martin, and M. E. Kimanya, “Prevalence and predictors of undernutrition among under-five children in Arusha District, Tanzania,” Food Science and Nutrition, vol. 6, no. 8, pp. 2264–2272, 2018.

[48] A. Wijiwinarsih, T. N. Susilawati, and B. Murti, “The effect of exclusive breastfeeding on wasting in children under five: a meta-analysis study,” Journal of Maternal and Child Health, vol. 4, no. 2, pp. 87–96, 2019.

[49] A. T. Wete, T. A. Zerfu, and A. T. Anbese, “magnitude and associated factors of wasting among under five orphans in Dilla town, southern Ethiopia: 2018: a cross-sectional study,” BMC Nutrition, vol. 5, no. 1, pp. 1–10, 2019.

[50] T. R. Chowdhury, S. Chakrabarty, M. Rakib, S. Afrin, S. Saltmarsh, and S. Winn, “Factors associated with stunting and wasting in children under 2 years in Bangladesh,” Helioyin, vol. 6, no. 9, article e04849, 2020.