

Wasting Among School Children and Its Association in Nuwara-Eliya District, Sri Lanka

By R. M. L. Rathnayake¹

ABSTRACT

The prevalence of child wasting is a leading issue of a child's physical and mental development. Wasting is assessed by measuring the Weight for Height (WFH) Z score. WFH is a measure of acute or short-term exposure to a negative environment and is one of the major three forms of undernutrition. Identifying the different relationships with wasting is important in the attempt to drop the prevalence of wasting to achieve an effective nation through well-nourished children. The objective of this study is to identify the associations between wasting among schoolchildren and different phenomena in Sri Lanka based on the Nuwara-Eliya district. A sample survey was conducted to collect data using a structured questionnaire in this study. Three hundred seventy-eight (378) schoolchildren studying in grade 6 (11 years old) were selected for the study. Multistage stratified random sampling was employed as the sampling technique. Wasting was measured using the Weight for Height (WFH) Z score using SPSS software. A parametric statistical test, the t-test and a non-parametric statistical test, the chi-square test was applied in the study in investigating the relationships. A chi-square test was applied to find out the relationships between wasting and categorical variables. For the relationship between wasting and continuous variables, a t-test was employed. In addition, descriptive statistics were applied in data analysis. A study found that the percentage of children suffering from wasting is 27.5%. The incidence of wasting is more related to low-income families, poverty, mothers working in the private sector, female children, families with more children, young mothers, no-schooling mothers and never married parents because of their higher prevalence of wasting than other groups. Thus, the study suggests an urgent need for more effective policies targeting to decrease the high prevalence of wasting among the children who belonged to these groups.

KEYWORDS: Gender, Income, Mother's Employment, Poverty, Wasting

¹ Department of Economics and Statistics, Faculty of Social Sciences and Languages, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, rathna@ssl.sab.ac.lk

INTRODUCTION

Child wasting is a leading public health problem in many developing countries. Child undernutrition includes wasting, stunting, and being underweight (WHO, 2023). Wasting is one of these major three forms of undernutrition and low weight-for-height is known as wasting (Casadei, K, & Kiel, J., 2021). Weight-for-height (WFH) indicates an energy balance, as weight can be lost or gained relatively quickly. WFH is a measure of acute or short-term exposure to a negative environment. It is sensitive to changes in calorie intake or the effects of disease. Wasting is contributing to child morbidity and mortality among under-5-year-old children mostly in many developing countries (Yassin et al., 2016). World Health Organization (WHO) and other health authorities commonly recommend anthropometric methods to assess nutritional status (Bates et al., 2017). Widely used anthropometric indices available to assess the nutritional status of children are Weight for Age (WFA), Height For Age (HFA), Weight For Height (WFH), Body Mass Index (BMI), Mid Upper Arm Circumference (MUAC), Weight at Birth (Casadei and Kiel, 2021). By measuring the Weight for Height, it can be determined if children are wasting. According to WHO, a child is considered wasted and severely wasted if the WFH Z score falls below minus two standard deviations ($<-2SD$) and minus three standard deviations ($<-3SD$) of the WHO child growth standard median, respectively (WHO, 2010).

UNICEF/WHO/World Bank Group (2021) stated that in 2020, globally, 45.0 million children under five were affected by wasting.

As given in Table 1, considering WHO regions, the wasting rate among children under five years is the highest (14.5%) in the heavily populated Southeast Asia region. Considering the income categories, the highest percentage of wasting is perceived in lower-middle-income countries (9.9%) while showing the lowest percentage (0.4%) for the high-income countries. Regarding South Asian countries, wasting is the highest in India (17.3%), while the second place has gone to Sri Lanka (15.1%). More than half of all children suffering from wasting worldwide are found in South Asia (UNICEF/WHO/WB, 2021), including Sri Lanka.

Table 1: Child wasting by WHO Regions and different categories of countries in 2020

WHO Regions			
Regions	Wasting %	Regions	Wasting %
African Region	5.8	Eastern Mediterranean Region	7.4
Region of the Americas	0.7	Europe Region	-
South-East Asia Region	14.5	Western Pacific Region	2.1
World Bank Income categories			
Type of Country	Wasting %	Type of Country	Wasting %
Low income	6.9	Upper middle income	2.1
Middle Income	6.8	High income	0.4
Lower-middle income	9.9		
South Asia Countries			
Country	Wasting %	Country	Wasting %
Afghanistan	5.1	Bhutan	5.9
Bangladesh	9.8	Pakistan	7.1
India	17.3	Sri Lanka	15.1
Nepal	12		

Source: UNICEF / WHO / World Bank Group, 2021

Table 2 indicates the prevalence of severe wasting (% below -3 SD) and wasting (% below -2 SD) among children under five years old for three main residential sectors in Sri Lanka. Severe wasting measured through a WFH Z score below -3 SD is the highest (3.7%) in the estate sector (DCS, 2017). The prevalence of waste assessed by WFH Z score below -2 SD is 11.8% in Nuwara Eliya district (DCS, 2017).

Table 2: Child Wasting in Sri Lanka by Residential Sector

Residential Sector	Wasting (Weight for Height)		
	% below -3 SD	% below -2 SD	Mean Z score
Urban	1.6	12.9	(-0.7)
Rural	3.2	15.6	(-0.9)
Estate	3.7	13.4	(-0.9)

Source: DCS, 2017

Table 3: Percentage of Population in the Estate Sector by District

District	Estate Sector (%)	District	Estate Sector (%)
Colombo	0.4	Badulla	18.4
Gampaha	0.1	Monaragala	1.7
Kalutara	3.2	Rathnapura	9.3
Kandy	5.9	Kegalle	6.6
Matale	2.5	Jaffna	-
Nuwara-Eliya	53.2	Mannar	-
Galle	1.9	Vavunia	-
Matara	2.9	Mullaitivu	-
Hambantota	-	Kilinochchi	-
Kurunegala	0.5	Batticaloa	-
Puttalam	0.2	Ampara	-
Anuradhapura	-	Trincomalee	-
Polonnaruwa	-	Total	4.4

Source: DCS, 2012

As evident from Table 3, the latest census of population and housing in Sri Lanka has shown that the percentage of population in the estate sector is the highest (53.2%) in the Nuwara-Eliya district (DCS, 2012). The highest prevalence of severe wasting was recorded for the estate sector, while the highest percentage

of estate population was recorded for the Nuwara-Eliya district. Therefore, Nuwara-Eliya district was selected as the study area for this study.

The prevalence of child wasting is a leading issue of a child's physical and mental development. The children suffering from waste are critical to the future labour supply in the country. Unhealthy children being wasted is a crucial barrier in the development process of the country through inefficient labour supply. Identifying the different relationships with wasting is important in the attempt to drop the prevalence of wasting to achieve an effective nation through well-nourished children. Many researchers in the world, including Sri Lanka, have conducted research on wasting in different aspects. However, it has not been comprehensively documented on wasting and its relationships among schoolchildren in the Sri Lankan context. The objective of this study is to identify the associations between wasting among schoolchildren and different phenomena in Sri Lanka based on the Nuwara-Eliya district.

LITERATURE REVIEW

In 1977, Waterlow defined wasting with the recommendation of using Weight-For-Height (WFH) z-scores and SDs (standard deviation) below the median (Waterlow et al., 1977). Later, measurement of wasting based on WFH was continued to be used widely with successive WHO amendments.

Child wasting and its association have been examined by many previous studies. Danso and Appiah (2023) have conducted a study on prevalence and associated factors influencing stunting and wasting among children. They have found that non-working or jobless parents have a higher possibility of their children suffering from wasting or stunting. Further, fathers' education, age of child, and birth interval were also found to be significant factors associated with wasting and stunting. According to Jayatissa et al. (2023), the percentage of children suffering from wasting is 14% and 21.4% among children aged 1-4 years and aged 5-9 years, respectively, during the COVID-19 pandemic in Sri Lanka. They revealed an absence of a significant difference between male and female with wasting among children. Further, they found that there was not an association between wasting and dietary intake. A significant association was derived between wasting and low family socioeconomic status (Tsedeke et al., 2016). According to Getaneh et al. (2019), children in lower socioeconomic classes were more likely to suffer from wasting than those who were in upper socioeconomic classes. A significant association was observed between family income and wasting, indicating that having a family income below 4000 BDT (~\$50) significantly increased the risk for wasting among Adivasi children aged 24–59 months in

Bangladesh (Kabir et al., 2018). High family income lowers the risk of wasting (Roobiati et al., 2019). Wasting among the children of low family income is higher than their counterpart (Yassin et al., 2016). Ayana et al. (2015) found that wasting was significantly associated with household monthly income. Khan and Mohanty (2018) suggested that the poverty of households was a strong and significant predictor of wasting. A significant association was found between higher wasting and low family wealth (Li et al., 2020). According to Getaneh et al. (2019), children in lower wealth index were more likely to be wasted than those who were in upper socioeconomic class. Food expenditure of the family is a related factor for wasting (Li et al., 2022). Ayana et al. (2015) found that wasting was significantly associated with paternal occupation. Das and Gulshan (2017) found that a mother's occupation as physical labour was a key factor for wasting. Ubeysekara et al. (2015) observed that wasting was higher among children whose mothers are unemployed than the employed mothers.

Many studies have investigated the relationship between wasting and maternal status. A significant association was found between wasting and maternal educational level (Li et al., 2020). Wasting among the children of low educated mothers is higher than their counterparts (Yassin et al., 2016). High maternal education is lowering the risk of wasting (Roobiati et al., 2019). Higher wasting is significantly associated with short maternal height and low BMI of mothers (Li et al., 2020). Mothers' age less than 20 years is associated with wasting (Pediater, 2008). With respect to the child's status, female children are more likely to be wasted than male children (Tsedeke et al., 2016). Low birth weight is associated with wasting (Pediater, 2008). Normal birth weight is lowering the risk of wasting (Roobiati et al., 2019). The incidence of wasting was highest among children aged between 48 and 60 months (Tsedeke et al., 2016). Wasting among the children who breastfed ≤ 12 months is higher than the others (Yassin et al., 2016). Good nutritional intake is lowering the risk of wasting (Roobiati et al., 2019). Respiratory and gastrointestinal infections increase wasting (Yassin et al., 2016). Small family size is lowering the risk of wasting (Roobiati et al., 2019). The prevalence of wasting is low among the children coming from rural sectors (Li et al., 2020). Higher prevalence of wasting is associated with children's cognitive delay in countries with low income and middle income (Emerson et al., 2020).

METHODOLOGY

A quantitative research approach with primary data collected through a sample survey was applied in this research. Sample survey data were collected using a structured questionnaire in this study. Three hundred seventy-eight (378) schoolchildren studying in grade 6 (11 years old) were selected for the study. Multistage stratified random sampling was employed as the sampling technique. At the first stage, Nuwara-Eliya district from 25 districts in Sri Lanka was decided as the study area due to the highest prevalence of severe wasting in the estate sector (DCS, 2017) and the highest percentage of estate population in the Nuwara-Eliya district (DCS, 2012). In the Sri Lankan educational system, the government schools are divided into four categories: Type 1AB, Type 1C, Type 2, and Type 3 (Ministry of Education, 2019). Only three types of schools, type 1AB, type 1C, and type 2, which hold grade 6 classes, were used as the first strata to draw the sample and from each, three schools were selected for the sample randomly. In the next stage, both male and female children of grade 6 classes of selected schools were selected proportionately to the sample. A sample was distributed for each selected school proportionally, representing both male and female and the total sample size of 378 was decided based on the Morgan table. The ethical approval to conduct this research was obtained from the ethics review committee at the University of Kelaniya, Sri Lanka and they agreed not to reveal the individual identities of both children and schools.

The incidence of child wasting, and its classifications were based on global standards: <-3 z score, <-2 z score, and ≥-2 z score (WHO, 2017). Wasting was measured using the Weight for Height (WFH) Z score using SPSS software.

The index was calculated using the following formula:

The formula to obtain the WFH z score is

$$WFH\ Z\ Score = \frac{M_o - M_e}{SD_e}$$

Where,

M_o = Observed Weight of an individual in a given Height

M_e = Median Weight of the reference population in a given Height

SD_o = Standard deviation of reference population in a given height

Table 4: Classification of Wasting

Weight-for-Height z-score	Classification
Z-score ≥ -2	Well nourished
Z-score < -2	Wasted
Z-score < -3	Severely wasted

Source: Namakin et al., 2014

Children with a WFH z score below -2 SD of the median of the reference population were considered as wasted and others are not wasted as given in Table 4 (Namakin et al., 2014). The other phenomena considered to investigate associations with wasting are income, expenditure, poverty, mother's employment, father's employment, gender, number of children in the family, mother's age, mother's occupation, and marital status. These phenomena are used as continuous variables and categorical variables. Income and expenditure are total monthly family income and expenditure and were used as continuous variables. However, they were later categorized in graphical representation. Poverty, mother's employment, father's employment, gender, number of children in the family, mother's age, mother's occupation, and marital status were used as categorical variables. Poor and non-poor status was decided based on the entitlement for Samurdhi. Both the parametric statistical test and the non-parametric statistical test were used to investigate relationships. The t-test and Chi-square test are the parametric and non-parametric statistical tests, respectively, applied in the study.

For the relationship between wasting and continuous variables, a t-test was employed. It is given by,

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\left(\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}\right) \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where,

n_1 and n_2 are total number of subjects for groups one and two respectively.

\bar{x}_1 and \bar{x}_2 are the sample means for groups one and two respectively

s_1^2 and s_2^2 are the varianecs for groups one and two respectively.

Chi-square test was applied to find out the relationships between wasting and categorical variables. It is given by,

$$\chi^2 = \sum \left[\frac{(o_{ij} - e_{ij})^2}{e_{ij}} \right] \sim \chi^2_{(c-1)(r-1)}$$

Where,

o_{ij} = Observed cell count in the i^{th} row and j^{th} column of the tables

e_{ij} = Expected cell count in the i^{th} row and j^{th} column of the tables

$$e_{ij} = \frac{i^{\text{th}} \text{ row total} * j^{\text{th}} \text{ column total}}{\text{Grand total}}$$

In addition, Kolmogorov-Smirnov and Q-Q plots for normality, descriptive statistics, percentages, tables, bar charts, pie charts were applied in data analysis. It is required to satisfy normality assumption for continuous variables prior to use parametric techniques for finding relationships among continuous variables. Therefore, normality assumption was checked for monthly family income and monthly family expenditure since they are continuous variables.

RESULTS AND DISCUSSION

The primary data collected from a sample of 378 grade 6 school children selected from government schools in the Nuwara-Eliya district, Sri Lanka was analyzed in this study.

SAMPLE DISTRIBUTION

The sample distribution with respect to the type of school, living sector, gender, race and, and religion is presented in the table 5.

Table 5: Sample Distribution

Characteristic	Categories	Number of children	Percentage (%)	Total
Type of school	Type 1AB	141	37	378
	Type 1C	140	37	
	Type 2	97	26	
Living Sector	Rural	258	68	378
	Urban	80	21	
	Estate	40	11	
Gender	Male	207	55	378
	Female	171	45	
Race	Sinhala	271	72	378
	Tamil	93	24	
	Muslim	7	2	
	Burger	7	2	
Religion	Buddhist	263	70	378
	Hindu	81	21	
	Islamic	7	2	
	Catholic	27	7	
Poverty	Poor	69	18	378
	Non-poor	309	82	

Source: Sample survey data analysis, 2023

As shown in the table 5, type 1AB and type 1C schools have similar representation (37%) in the sample while least representation was by type 2 schools (26%). Considering the residential sector, the majority of the children (68%) in the sample have lived in the rural sector while the least percentage of children have come from the estate sector. The urban sector representation in the sample was 21% recording the second place. Male representation (55%) of the sample is higher than the female representation (45%). Considering the race, the highest, 72% of the sample consists with Sinhalese while the lowest with Muslims and Burgers (2%). Regarding the religion, the highest percentage (70%) of the

sample was recorded from Buddhist religion group. The lowest percentage (2%) of the sample was represented by Islamic children. The percentage of children from poor families is 18 and non-poor families is 82 based on having or not having Samurdhi.

PREVALANCE OF WASTING

Table 6: Prevalence of Wasting in the Sample

Wasting	Number of children	Percentage (%)	Total
Suffering from Wasting	104	27.5	378
Not Suffering from Wasting	274	72.5	

Source: Sample Survey Data Analysis, 2023

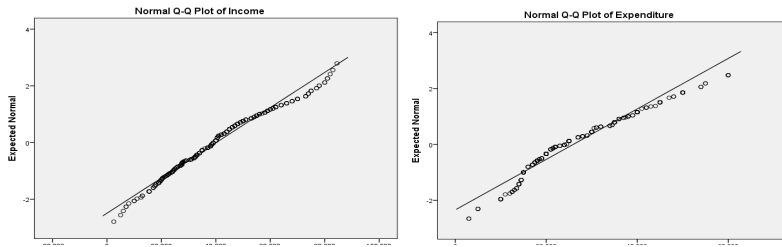
Table 6 revealed that the percentage of children suffering from wasting is 27.5% while the percentage of children not suffering from wasting is 72.5%. According to the Department of Census and Statistics (Dwas (2017), 11.8% of children (for under-five year children) have suffered from wasting, which were measured through the WFH z score for the Nuwara-Eliya district. The prevalence of wasting under this study is higher than the percentage given by DCS in 2017.

Table 7: Kolmogorov-Smirnov test for Normality

Variables	Kolmogorov-Smirnov^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Income	0.082	378	0.053	0.978	378	0.05
Expenditure	0.096	378	0.05	0.985	378	0.049

a. Lilliefors Significance Correction

Source: Sample Survey Data Analysis, 2023

Figure 1: Q-Q Plot for Normality

Source: Sample Survey Data Analysis, 2023

Table 7 shows the test statistic and its significance value for Kolmogorov-Smirnov test for normality. It is greater than 0.05 and equal 0.05 for income and expenditure respectively indicating the normal distribution of these variables. Further, as shown in figure 1, Q-Q plots revealed that normality assumption is satisfied for the variables, income and expenditure. Therefore, t test was applied to check the relationship between wasting and two continuous variables, income and expenditure.

Table 8: Result of t-test and Chi-square test

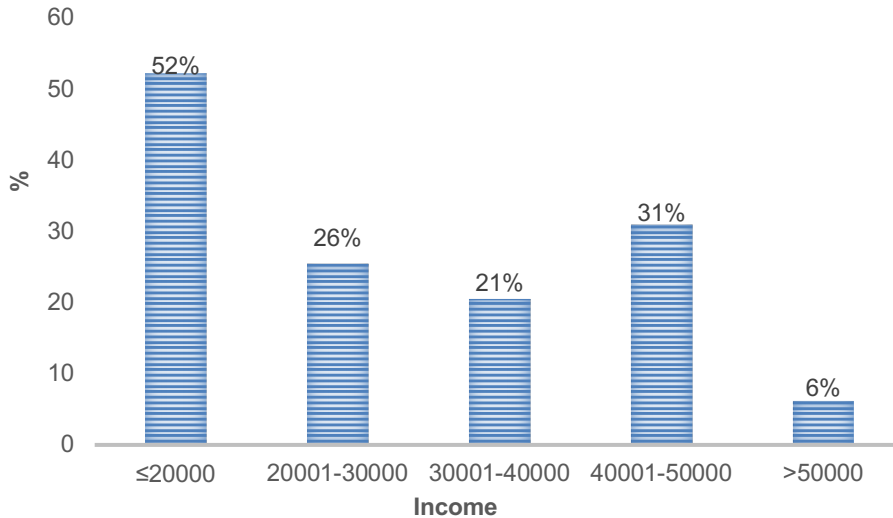
Variables	Wasting	Variables	Wasting
Income	t test (p value=0.004)	Gender	Chi-Square (p value=0.035)
Expenditure	t test (p value=0.061)	Number of Children	Chi-Square (p value=0.049)
Poverty	Chi-Square (p value=0.048)	Mother's Age	Chi-Square (p value=0.035)
Mothers' Employment	Chi-Square (p value=0.042)	Mother's Education	Chi-Square (p value=0.002)
Father's Employment	Chi-Square (p value=0.051)	Marital Status	Chi-Square (p value=0.050)

Source: Sample Survey Data Analysis, 2023

According to Table 8, the t test proves that the family income and the wasting have a statistically significant relationship at the 0.01 level. Supporting this result,

Ayana et al. (2015) found that wasting was significantly associated with household monthly income.

Figure 2: Prevalence of Wasting by Income

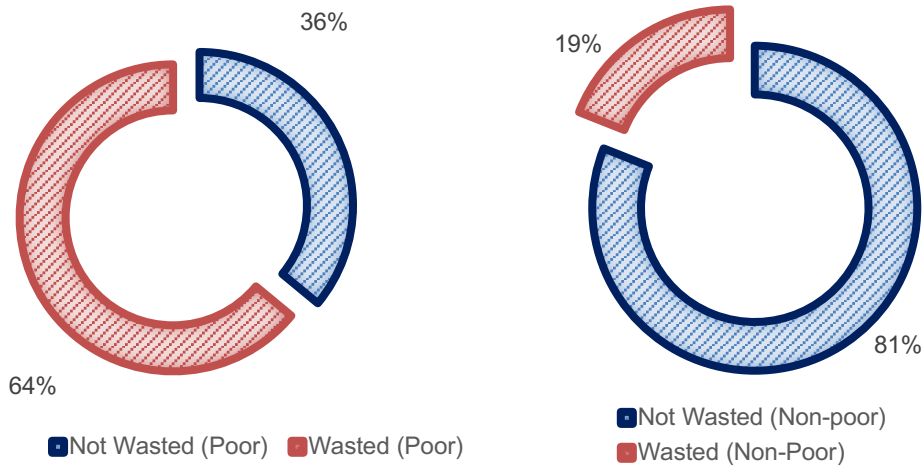


Source: Sample Survey Data Analysis, 2023

Figure 2 shows a negative relationship between wasting and income categories. The highest percentage of wasting, 52%, is recorded for the lowest income group, less than 2000, while it is lowest (6%) in the highest income group, more than 5000. Agreeing with this, Roobiati et al. (2019) observed that high family income lowers the risk of wasting. Wasting among the children of low family income is higher than their counterpart (Yassin et al., 2016). Kabir et al. (2018) observed a significant association between family income and wasting, indicating that having a family income below 4000 BDT (~\$50) significantly increased the risk for wasting among Adivasi children aged 24–59 months in Bangladesh.

Considering expenditure, Table 8 showed that the value of the t-test (0.061) is greater than 0.05, indicating an absence of significant association with wasting. In contrast, Li et al. (2022) illustrated that food expenditure of the family is a related factor for wasting.

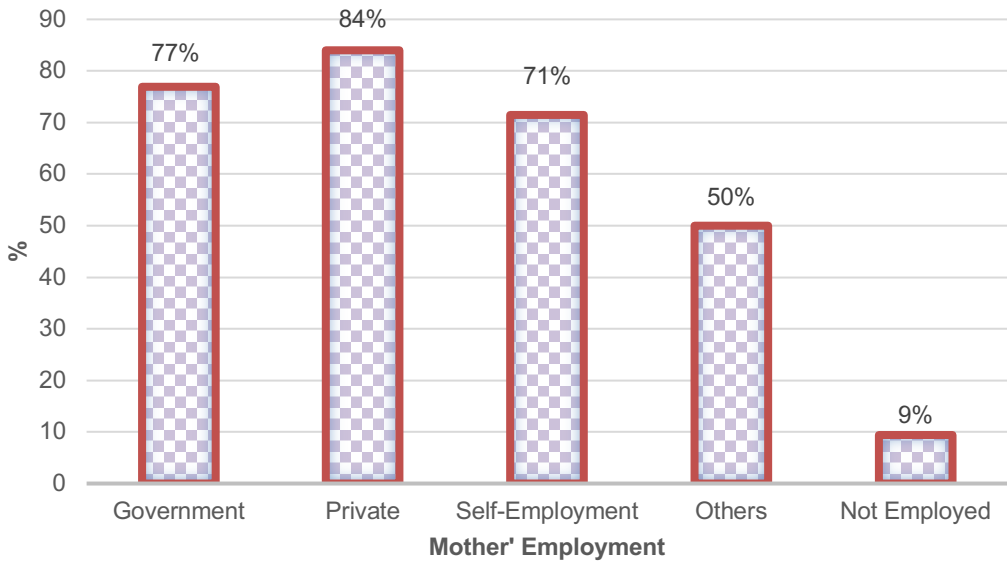
Figure 3: Prevalence of Wasting by Poverty



Source: Sample Survey Data Analysis, 2023

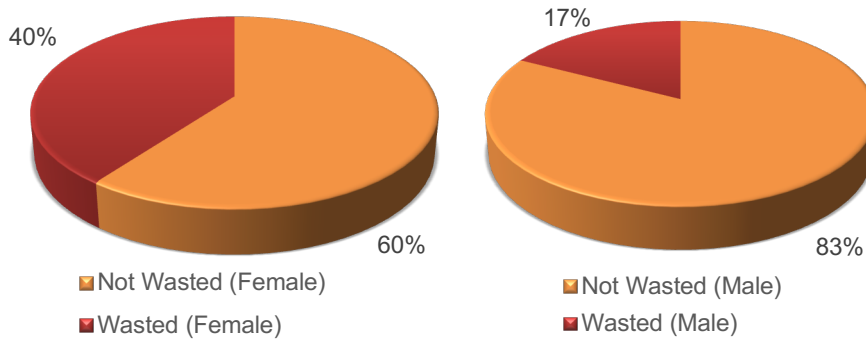
As given in Table 8, the chi-square value provides that poverty is statistically related to wasting at the 0.05 significance level. Similarly, Tsedeke et al. (2016) observed that the children coming from poor households were significantly associated with wasting. As shown in Figure 3, a big difference in child wasting exists between poor children and non-poor children. Child wasting is more common among poor children than non-poor children, indicating that 64% of poor children and 19% of non-poor children are suffering from wasting. It is evident that for the poor group, the percentage of wasted children is higher than the percentage of non-wasted children and the opposite is seen among the non-poor.

Figure 4: Prevalence of Wasting by Mother’s Employment



Source: Sample Survey Data Analysis, 2023

The result of the chi-square test, given in Table 8, proves that the mother’s employment and wasting have a statistically significant relationship at the 0.05 level. Supporting this result, Das and Gulshan (2017) found that a mother's occupation was a key factor for wasting. Figure 4 highlights that the highest percentage of child wasting (84%) is seen among children whose mothers work in the private sector. The second place has gone to the children whose mothers work in the government sector. Wasting has appeared to be the lowest among the children with mothers who are never employed (9%). Further, a considerable percentage of children with mothers involved in self-employment (71%) are suffering from wasting. In contrast, Ubeysekara et al. (2015) observed that wasting was higher among children whose mothers are unemployed than the employed mothers.

Figure 5: Prevalence of Wasting by Gender

Source: Sample Survey Data Analysis, 2023

According to the table 8, chi-square proves that the gender and the wasting have a statistically significant relationship at 0.05 level. Figure 5 shows that the incidence of child wasting is different with respect to the children being a male or female. The female children are more likely to expose to wasting than the male children. Similarly, according to Tsedeke et al. (2016), female children are more likely to be wasted than male children. Also, this study reveals that 40% of the females and 17% of the males of the sample are suffering from Wasting. Based on the demographic and health survey report, the percentage of wasting (National) among under five-year children for males is 15.4% (DCS, 2017). However, the prevalence of wasting found in this study using the sample drawn from Nuwara-Eliya district for males (17%) is slightly close to the results (15.4%) for male (under five-year children) for overall-Sri Lanka computed by DCS (DCS, 2017). According to the DCS, the percentages wasting (National) among under-five year children for females are 14.7% (DCS, 2017). Regarding female, the percentage suffering from wasting computed using the sample drawn from Nuwara-Eliya district (40%) is higher than that for overall Sri Lanka (14.7%) (under five-year children) provided by DCS (DCS, 2017). Considering national figures, wasting among under five-year children is appearing a little higher among males (15.4%) than female (14.7%).

Table 9: Prevalence of Wasting by Different Variables

Variable	Categories	Wasted %	Not Wasted %
Number of children	1	40	60
	2-3	20	80
	4-5	22	78
	>5	67	33
Mother's age in years	≤30	35	65
	31-35	45	55
	36-40	25	75
	41-45	15	85
	46-50	27	73
	>50	20	80
Mother's education	No schooling	71	29
	Primary	33	67
	Secondary	18	82
	Tertiary	48	52
Marital status	Married	27	73
	Divorced/Separated	16	84
	Widowed	43	57
	Never married	80	20

Source: Sample Survey Data Analysis, 2023

Chi-square, as given in Table 8, proves that the number of children in the family and wasting have a statistically significant relationship at the 0.05 level. Table 9 revealed that the percentage of suffering from wasting is the highest (67%) among the children of families with more than five children. The least percentage of (20%) wasting is recorded for the family group with the number of children being 2 or 3. Supportively, Roobiati et al. (2019) found that small family size lowered the risk of wasting.

According to the chi-square given in Table 8, mother's age and wasting have a statistically significant relationship at the 0.05 level. Table 9 shows the percentages of wasted children by mother's age. The highest child wasting was found at 45% for the age group of 31-35 years. For the first two age groups (≤ 30 , 31-35), the percentage of child wasting is higher than the other age groups. The percentage of children suffering from wasting is lowest (15%) for the 41-45 age group. It is obvious that young mothers are more likely to have malnutrition for their children than their counterparts. According to Tsedeke et al. (2016), considering children's age, the incidence of wasting was highest among children aged between 48 and 60 months.

Table 8 shows that a mother's educational level and wasting are statistically related based on the chi-square test. Agreeing with this, Li et al. (2020) found a significant association between wasting and maternal educational level. As shown in Table 9, regarding the mother's educational level, the highest prevalence of wasting (71%) appeared among the children whose mothers had no schooling. Similarly, wasting among the children of low-educated mothers is higher than their counterparts according to Yassin et al. (2016). High maternal education lowers the risk of wasting (Roobiati et al., 2019). According to Table 8, for the mothers with tertiary education, 48% of the children suffer from wasting, recording the second place. The lowest wasting (18%) is seen among the children of mothers who had secondary education.

Considering the marital status, Table 8 shows that it is statistically related to wasting based on the chi-square test. Table 9 reveals that the percentage of suffering from wasting is the highest (80%) among the children of parents who have never married. The second place has gone to the children belonging to widowed families, recording 43% of wasted children. The percentage of children suffering from wasting is low among children with parents who are divorced/separated (16%) and married (27%) relative to the children with never-married parents.

CONCLUSION

This research study was conducted to identify the relationships between socio-economic and demographic status and the prevalence of wasting among schoolchildren in the Nuwara-Eliya district, Sri Lanka. Both quantitative and qualitative data were gathered through a sample survey. Three hundred seventy-eight (378) schoolchildren were selected for the study. Multistage stratified random sampling was employed as the sampling technique. The incidence of child stunting and its classifications were based on global standards: < -3 z score,

<-2 z score, and ≥-2 z score (WHO, 2017). Wasting was measured using the Weight for Height (WFH) Z score, a chi-square test was applied to find out the relationships between wasting and categorical variables. For the relationship between wasting and continuous variables, a t-test was employed. In addition, descriptive statistics, percentages, tables, bar charts, and pie charts were applied in data analysis.

Considering the sample distribution, male representation of the sample (55%) is higher than female representation (45%). Type 1AB and type 1C schools have similar representation (37%) in the sample, while the least representation was by type 2 schools (26%). Considering the residential sector, the majority of the children (68%) in the sample have lived in the rural sector. The percentage of children suffering from wasting is 27.5%, which was measured through the WFH Z score. Family income and wasting have a statistically significant relationship at the 0.01 level, while family expenditure is not significant. The highest percentage of wasting, 52%, is recorded for the lowest income group, less than 2000, while it is lowest (6%) in the highest income group, more than 5000. The chi-square value provides that poverty is statistically related to wasting at the 0.05 significance level. Child wasting is more common among poor children (63%) than non-poor children (19%). According to the chi-square test, mother's employment and wasting have a statistically significant relationship at the 0.05 level. The highest percentage of child wasting (84%) is seen among children whose mothers work in the private sector. Based on the chi-square test, gender and wasting have a statistically significant relationship at the 0.05 level. Female children are more likely to be exposed to wasting (40%) than male children (19%). A chi-square test found that the number of children in the family, mother's age, mother's educational level, marital status, and wasting are statistically significantly associated. The percentage of suffering from wasting is the highest (67%) among the children of families with more than five children. The highest child wasting was found at 45% for the mother's age group of 31-35 years. The highest prevalence of wasting (71%) appeared among the children whose mothers had no schooling. The highest percentage of wasting (80%) was evident among the children of parents who had never married.

It is concluded that more concern should be placed on low-income families, poverty, mothers working in the private sector, female children, families with more children, young mothers, no-schooling mothers, and never married parents because of their high prevalence of wasting compared to other groups. Thus, the study suggests an urgent need for more effective policies targeting a decrease in the high prevalence of wasting among the children who belong to these groups.

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