

## Women Empowerment and the Nutrition Status of Children Aged Between 6-59 Months

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### Abstract

Malnutrition remains a concern in the central province, despite being the most productive province in terms of Agriculture. Most studies in the province have not paid attention to the importance of women empowerment and the nutrition outcomes of the population. In light of this knowledge gap, this study focused on the Women's empowerment and the nutrition status of children aged 6-59 months. The study assessed the extent to which women are empowered in agricultural activities. This study sought to determine the association of women empowerment and nutritional status of children aged 6-59 months in Kapiri-Mposhi district in the Central Province of Zambia. A cross-sectional descriptive study was conducted using a structured questionnaire. A total of 99 households were randomly sampled and the nutritional status of one child from each household assessed using anthropometric measurements. A total of 99 children were included in the study. Up to 21% of the children were stunted; 2% were wasted; and 9% underweight. There was a significant relationship between access to credit or income opportunities and Z-scores for wasting (WHZ) ( $p < 0.05$ ). This study suggests that further investment into women's access to income may help improve the nutrition status of children.

**Keywords:** Children; Nutrition; Women empowerment

### Introduction

The nutrition status and child survival is influenced by the interaction at household level. This interaction is more important in children below the age of five years because they are not yet in school but spend most of the time at home [1]. Given this background women empowerment play a very important role in the nutrition status of under-five children [2].

Women are considered to be empowered if they are highly educated, make decisions, they own goods, have access to income and if they are able to take up leadership positions [2]. The type of food and the time of feeding children are usually determined by mothers. Studies have indicated that feeding and child growth outcome of under-five children is determined by mother [3]. In addition women's participation in household decision has been linked to improvement of under-five children's health [4,5]. Furthermore, research shows that a woman's control over financial resources could effectively change the composition of household purchases [6,7]. Women who have control over finances are capable of buying a variety of nutritious foods compared to those who are not.

According to Zambia Demographic Health Survey 2013/2014 the levels of stunting in the central province is unacceptably high. About 43% children are stunted, 15% underweight and 5% wasting [8]. There are policies that look at gender and women's rights at local government level in Zambia. These policies are there to provide an enabling environment for the observance of women's right and their involvement in national development. The policies include the National Gender policy and National Health strategic plan [9,10]. Furthermore, the Government of the Republic of Zambia (GRZ) recognises the role Non-Governmental Organisations (NGOs) play in providing service for women. Despite this background, there is limited information on women empowerment and the nutrition status of children in Central Province. The primary objective of this study was to assess women empowerment in agricultural activities and its association to child nutrition status. The primary outcome was improved Z scores in children whose mothers were empowered compared to those who were not.

## Materials and Methods

### Study Site

The study is part of a macro study 'Implementation of Nutrition Sensitive Agriculture in the Central Province of Zambia' that was conducted in Kapiri-Mposhi a small district of the Central Province [11]. Kapiri-Mposhi is located -13° 58' 17.29" S, 28° 40' 11.46" E and has population of 240,648 [12]. The economic base of the district is mainly the agricultural sector. About 90% of the inhabitants depend on agriculture for their livelihood and most of them are peasant farmers.

### Study Design

A cross sectional survey, both descriptive and analytical in nature was carried out using a pretested structured questionnaire. The questionnaire consisted question on social-demographic characteristics, nutrition status of children and women empowerment.

The sample size was determined by using the prevalence of stunting in Kapiri-Mposhi and Kish's formula for cross sectional surveys was use [13].

The following formula was used to select a sample.

$$n = \frac{z^2 \times p \times q}{m^2}$$

Whereby:

n = desired minimum sample size

z = the standard normal deviate corresponding to 95% Confidence Interval (1.96)

p = the proportion of an indicator measured

q = 1 - p

m = degree of accuracy or desired precision

-Taking the prevalence of stunting in Central province as 53% or 0.53 for, z statistic corresponding to 95% confidence interval for a two-tailed test as 1.96, and degree of accuracy at 0.05, the sample size will be:

$$n = \frac{(1.96)^2 \times 0.53 \times 0.47}{(0.05)^2} = 382$$

About 356 (26 had missing data) households were sampled and 108 households with children aged 6-59 months were selected for the study, by the random numbers method. The selected households were drawn from small-scale famers who had at least one child between the ages of 6-59 months. If there was more than one child, only the youngest child was enrolled for the study. Some of the households had missing data making the final sample to be 99 households and 99 children aged 6-59. Verbal consent was obtained from all participants. Confidentiality was assured and participants were free to withdraw from the study at any time.

### Data Collection

The questionnaires comprised mainly of details on household profiles like age, sex, education level and occupation of household members, household size and marital status of the household heads, children's nutrition status of and questions on women empowerment.

### Anthropometric Data

Anthropometric measurements were taken for children aged (6-59) months. The child's date of birth was obtained from the under-five clinic card and was recorded in months. Weight was measured using a salter scale. The scale was hanged on to a secure place and the child's measurements were recorded to the nearest one decimal place. The length/height was measured using a UNICEF wooded length/height board.

### Women Empowerment Data

Data on women empowerment was collected using a questionnaire. Five questions were included in the questionnaire. The questions included women's access to productive resources, access to household income, access to extension services, women's voices in household decisions and women leadership in agriculture programs. Women were asked to respond yes or no to the above questions and multiple answers were allowed. We used a scale of 1-5 to determine women empowerment. Those who scored 4 (yes) and above were considered to be empowered while those who scored 3 (yes) and below were considered not empowered.

### Focus Group Discussions (FGDs)

A total of three Focus Group Discussions were conducted. One had males only, the second one had females only and the third one

had both males and females. A FGD guide was used to aid the discussion. The discussion focused on the nutrition status of 6-59 months children and women empowerment. Proceedings of the FGD were recorded by the chief investigator and later transcribed.

## Data Analysis

WHO anthro software was used to compute Z-score (weight-for-age, height-for-age and weight-for-height) according to WHO reference standard [14], taking -2SD as cut-off points (underweight, stunting and wasting). The Statistical Package for Social Scientists (SPSS) version 20 was used to analyze demographic and socio-economic data. Independent t-test was used to establish relationships between women empowerment and the nutrition status of children.

## Results

### Characteristic of Study Population

Most women in the study were married 88% while 7% were widowed and 5% were single parents. About 8% of the women had no formal education, 26% attended primary education, 49% went up to secondary school while 17% had post-secondary education. The majority of women were between 25-40 (67%) years of age, 20% were above 40 while 13% were below 25 years of age (Table 1).

Characteristic	Frequency (n=99)	Percentage
<b>Education level</b>		
No Formal Education	8	8
Lower Primary	26	26
Secondary	48	49
Post-Secondary	17	17
<b>Marital Status</b>		
Single	5	5
Married	87	88
Divorced/Widowed	7	7
<b>Age</b>		
Below 25	13	13
Between 25 -40	66	67
Above 40	20	20

**Table 1:** Distribution of respondents according to their level of education and source of income

### Women Empowerment Assessment

Women empowerment was assessed according to the number of positive responses to the five questions that were included in the questionnaire. If the woman scored three (3/5) the woman was considered not empowered but if the scores were more than 4 then the woman was considered empowered. We assumed that conducting interviews in respondents' homes would yield 100% responses because in the rural communities of Zambia, it is easy to access mothers in their homes compared to meeting them at a specific facility.

More than 70% had no access to reproductive resources. It was also discovered that very few women held leadership positions in agricultural activities (27%). Access to extension services was also limited (33%) because women were thought to grow mostly inferior crops as compared to men who grew cash crops. Access to income opportunities was also limited (32). About 50% women indicated that they had a voice in household decisions (Table 2). The data from FGDs suggested that women were not empowered in the study area. Most men indicated that if women were empowered in the home the men were going to lose respect from their wives because a man was the head of the house.

Empowerment practice	Frequency (n=99)	Percentage
Access to productive resources	30	30
Access to income opportunities or credit	32	32
Women voice in farming decision making	50	51
Female holding leadership in agricultural programmes	27	27
Access to extension services and information	33	33

**Table 2:** Reported extent to which women empowerment practices are undertaken in the study area

### Malnutrition Among the Children

The mean age of the sampled children was 32.5 months, with the youngest being 6 months old and the oldest 59 months old. Overall, 79% of the children had normal height for their age. The prevalence of stunting among the children was 21% (Table 3). Up to 98% of the children had normal weight for their height. Prevalence of wasting was 2% while the prevalence of underweight was 9%. Stunting was lowest in the first year of life and highest in second and third years of life; while underweight and wasting was highest in the fourth year. Prevalence of underweight increased with age from the fourth year of life. No incidence of wasting was observed in the first year of life.

Indicator	n	Mean z-scores ± SD	Design Effect (z-score <-2)	z-scores out of range	Prevalence rate in %
Weight-for-Age (WAZ)	99	-0.5±0.86	1.00	0	9
Height-for-Age (HAZ)	99	-1.23±1.12	1.00	0	21
Weight-for-Height(WHZ)	99	0.14±1.05	1.00	0	2

Table 3: Mean Z-Scores, Design Effects

There is significant displacement of the sample curve to the left of the reference, indicating a poor nutritional situation in the sampled population (Figure 1). The mean Z score of the sample is -1.23 (SD 1.12) indicating a poorly nourished population.

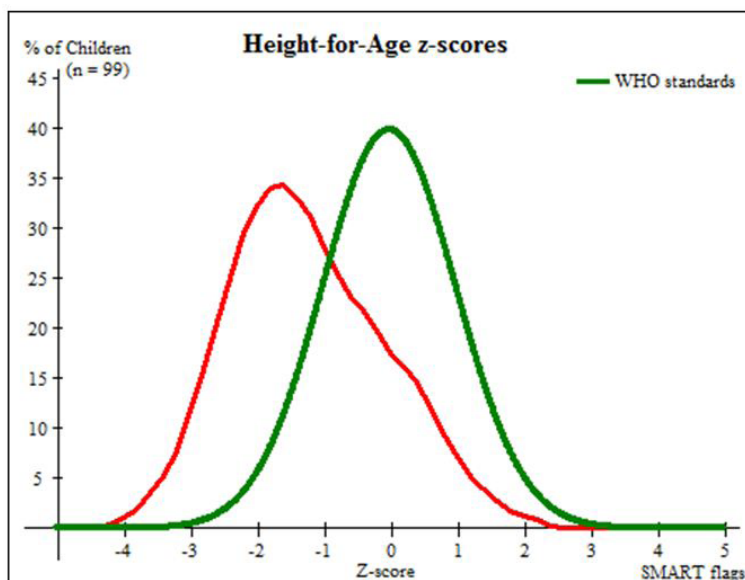


Figure 1: Height for Age Z-scores

### Women Empowerment and the Nutrition Status of Under-five Children (6-59 months)

T-test was performed to compare mean values of various indicators of nutrition status for various practices of women empowerment. Mean values of the t-test variables are presented in Table 4. Out of the 5 practices that were tested, only 1(20%) showed a significant relationship with the nutrition status of the under-fives children in the households. It is showing that access to income/credit was positively affecting the WHZ outcome.

Women Empowerment Indicator	N=99	WAZ		HAZ		WHZ	
		Mean±SD	P-value	Mean±SD	P-value	Mean±SD	P-value
Have no access to income/credit	32	-0.66±0.86	0.64	-1.08±1.15	0.989	-0.17±1.14	0.018
Have access to income/credit	67	-0.34±0.82		-1.08±1.19		0.32±0.93	

N: number of households with under-five aged between 6-59 months.

Table 4: Relationship between women empowerments and under-five (6-59) nutritional status

### Discussion

A number of studies have demonstrated that women’s empowerment is associated with better health outcomes in children [7,14-18]. This study found that households that reported to have higher access to income/credit by women was having better scores in weight-for-height (WHZ) of their children. Evidence suggests that women’s control over finances is particularly important for household food security and for child outcomes because women tend to invest substantially in nutrition, education, and healthcare

[6,7,19,20]. However, other indicators of women empowerment included in this study had no association with the nutrition status of children aged 6-59 months. Studies shows that a woman's voice in decision-making is positively associated with the nutrition status of children under the age of five [21-23]. There is evidence that women decision making is not directly associated with nutrition status of children [24]. Our study agrees with the findings because we did not find any association women's voices in household decisions and the nutrition status of children. A study in Nepal found that composition of agricultural production could directly influence the availability and quality of food in the household [25]. This is in line with what this study found. Our study did not find any association between access to productive resources and the nutrition status of children. The other indicator added was access to extension services, which had no association with improved nutrition status. The results agree with what Duflo found [26].

## Strength and Limitation of the Study

The strength of this study is that it will provide useful information to the Zambian government when formulating and implementing specific rural based interventions to promote women empowerment. The limitation is that not all under-five children were included in the study due to the limited budget.

## Conclusion

This study concluded that there is need for women to have access to finances in order to improve the nutrition status of children in the study area. We further recommend a longitudinal study to be conducted in order to document women activities for a period.

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