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## Factors influencing parents and caregivers' engagement in school feeding programmes in Nzega District, Tanzania.

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### ABSTRACT

This study examined factors influencing parents' and caregivers' engagement in School Feeding Programmes (SFPs). The study was conducted in Uduka Ward, in Nzega District, Tanzania. The study adopted a cross-sectional research design and collected data through interviews and documentary review methods. The study involved 227 respondents, 219 parents and caregivers, and 8 key informants who were systematically and purposively selected, respectively. Interviewers administered a questionnaire to collect primary data. The collected data were subjected to binary logistic regression and descriptive statistics analysis. The study observed that education level, income, number of income sources, attitude towards primary education, and awareness of SFPs significantly influenced the engagement of parents and caregivers in SFPs through contributions. The study concludes that several factors have a significant influence on parents' and caregivers' engagement in SFPs. These factors include income, number of income sources, education level, attitude towards education and SFPs, all of which have a positive association with their engagement in SFP. The study recommends enhancing the efficacy of the programme and the engagement of parents and caregivers through workshops and information sharing sessions, the Ministry responsible for Education and Vocation Training can cultivate a better understanding on how SFPs positively affects pupils' health and educational performance, thereby increasing participation and support for SFPs. To boost parents' and caregivers' engagement in school feeding initiatives, it is advisable to the responsible ministries to improve individuals' education level, households' income and launch targeted awareness raising and mindset change campaigns on provided education and the school feeding programmes.

### 1. Introduction

At different ages children need nutrients like vitamins, minerals, carbohydrates, protein, and fats (Flores, 2023). The fact that well-fed children are more likely to stay in school longer to learn and grow well necessitated the adoption of school-based feeding programmes in many countries, including Tanzania. School Feeding Programmes (SFPs) are organized initiatives aimed at providing meals to pupils within the Nzega District Council. These programmes are designed to enhance pupils' nutrition, improve attendance, academic performance, and support overall well-being.

School feeding programmes in Nzega district council are run by schools, and local government in collaboration with parents and carers. The SFPs are initiatives that provide food, and nutrition to primary school children that is why the programmes are implemented in primary schools. School feeding programmes play a crucial role in enhancing the well-being of pupils, promoting academic performance, and fostering overall pupil development (Roothaert *et al.*, 2021; AUDA-NEPAD, 2023).

In the global context, many studies highlight the significance of SFPs as a tool for addressing

malnutrition, enhancing educational outcomes, and breaking the cycle of poverty (Global Communities, 2024). These programmes often focus on local procurement and community engagement, creating a positive cycle of food production, economic stimulation, and improved health for children (DAUDA-NEPAD, 2023). The United Nations' Sustainable Development Goals (SDGs) Goal 2, emphasizes on the importance of achieving zero hunger and improving nutrition by 2030. Several African countries have implemented school feeding programmes to improve school attendance, nutrition, and educational outcomes. Some notable examples include Botswana, Lesotho, South Africa, Zambia, Rwanda, Benin, Senegal, Cape Verde, Ghana, and Zimbabwe with many others following suit (Bryant, 2023). In such countries parents and caregivers are expected to contribute financially or through other means to support school feeding programmes. However, there are instances where parents fail to fulfil this responsibility, leading to challenges in sustaining the programmes. According to WFP (2021), lack of parental contribution is a significant concern in several countries. The WFP (2021) report highlights that in some regions, up to 40% of parents do not make regular contributions towards SFP. The primary reasons for this failure are economic constraints faced by parents and care providers. In low-income earning countries, many families struggle to meet their basic needs, making it difficult for them to allocate resources for SFP (WFP, 2021). Additionally, lack of awareness about the importance of these programmes and limited understanding of their potential benefits can also contribute to parents' and caregivers' unwillingness to engage in the SFP.

Africa persistently has been facing challenges related to child malnutrition and limited access to quality education (Fanzo, 2012; Kalbek, 2024). Many countries in Africa, including Tanzania where Nzega District is located, have implemented SFP as part of broader efforts to improve child well-being and educational outcomes. In Nzega District specifically, SFPs

are critical due to the prevalence of poverty, and the need to ensure that pupils have adequate nutrition to support their growth, learning, and development. Parents and caregivers are essential stakeholders in the effective implementation of SFP, as their contributions can significantly influence the sustainability and success of these initiatives. However, studies suggest that parents and caregivers engagement in school feeding programmes can be low, even when government efforts are in place to encourage participation. While parents may be aware of the programme and even involved in initial planning, their full engagement in supporting the programme implementation may not be consistent (Haule and Mwinani, 2024; Swila et al., 2024).

Parents' and caregivers' engagement in SFPs is crucial as it helps to ensure that children are consuming the food provided by the SFPs. Studies have shown that when parents are engaged in the planning, preparation, and monitoring of school meals, children are more likely to eat the food provided, and to eat a balanced diet (Jenssen *et al.*, 2019; Global Child Nutrition Foundation, 2022; UNESCO, 2025). Parents' and caregivers' engagement can help to promote a positive attitude towards healthy eating, and nutrition, which can have long-term benefits for children's health, and well-being (WFP, 2021). There are several approaches in which parents, and caregivers are engaged in school feeding programmes in Tanzania. The approaches are established by Parent-Teacher Associations (PTAs) or Parent-School Associations (PSAs) that can work with school administrators, and food service providers to plan, prepare, and monitor school meals (Zhang, 2023). These associations can also participate in fundraising and advocacy efforts to support the SFP (Wang *et al.*, 2021). Another approach is to provide training to parents and caregivers on healthy eating and nutrition, and how to prepare healthy and nutritious meals for their children (Kiefner-Burmeister *et al.*, 2014). This can help to empower parents and caregivers in making informed decisions about

their children's diet, and supporting the SFPs (McManus *et al.*, 2023).

Tanzania provides an interesting case study when examining the status of parents and caregivers failing to engage in SFP. The government of Tanzania has implemented various initiatives aimed at improving access to education, and nutrition for children, including the National School Feeding Programmes (NSFPs). The NSFP aims to enhance enrolment rates, attendance, and academic performance by providing meals in schools (Zhang, 2023). While the NSFP has made significant progress in addressing child malnutrition and improving school attendance and academic performance, challenges remain in parents' and caregivers' engagement. According to a study conducted by the Tanzania Food and Nutrition Centre (TFNC), only a small percentage of parents and caregivers engage financially and materially towards the school feeding initiatives (TFNC, 2018); reasons for the situation are not well revealed. The study by TFNC discovered that out of the surveyed parents only 20% made regular contributions, while the majority relied on government funding, but why? what exactly could be the influencing factors?

The low parents and caregivers engagement in SFPs in Tanzania could be attributed by various factors like economic constraints, limited awareness about the importance of SFP, and lack of understanding about their impact on children's education (TFNC, 2018). The cultural beliefs and practices could also influence potential stakeholders' engagement in SFPs. In some communities, there may be a perception that it is solely the responsibility of the government to provide meals at schools. This mindset discourages parents and caregivers from actively engaging in the SFPs. Amongst all these, the extent to which each contributes to parents' and caregivers' sluggish engagement in the SFPs in Nzega District was not clearly scrutinized. Despite the recognized importance of the parents' and caregivers' engagement in SFPs, there is a shortage of analysed factors that influence parents and caregivers' engagement through contributions in SFPs in Nzega District. Understanding these

factors is crucial for designing targeted interventions that can enhance community members' engagement and support the sustainability of SFPs. Therefore, this study intended to examine factors that influence parents and caregivers' engagement in SFPs through making financial contributions.

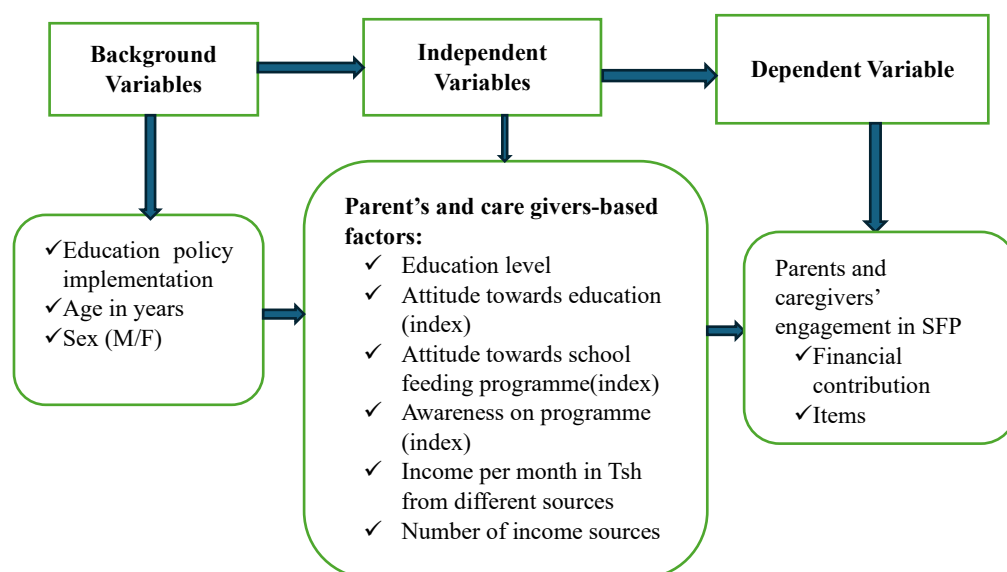
This study asserts to address the problem of parents' and caregivers' reluctance to engage in SFP since the programmes play a crucial role in promoting children's nutritional well-being and academic performance (Spear *et al.*, 2022; Williams *et al.*, 2022a). Despite this importance, there has been a low parent and caregiver engagement in contributing to SFP (Sanders-Smith *et al.*, 2020), a phenomenon that currently poses a considerable challenge to the programme's effectiveness and endurance. Available data reveal that low parents' and caregivers' engagement in SFP jeopardises the sustainability and effectiveness of the programmes. From the year 2019 to 2023, only 30% of parents' and caregivers were engaging through making financial and item contributions, and the rest 70% were not engaging (Nzega District Education Officer, 2023). In other countries like Malaysia, the engagement rate through making contributions stands at 55% (Đurišić and Bunijevac, 2017). Low engagement in SFP by parents and caregivers adversely influences the nutritional well-being of children, their academic performance, and the overall sustainability of the SFP. Thus, understanding the reasons behind the low engagement of parents and caregivers in SFPs in the Nzega District was imperative.

In response to the low contributions of parents and caregivers in SFPs, the Nzega District Council introduced various initiatives, such as targeted outreach campaigns, community meetings, and flexible payment options. Additionally, they collaborated with local business firms to motivate parents' and caregivers' engagement in SFPs. While some progress has been made, the success of these initiatives remains limited, and the reasons are not clearly disclosed. The engagement rate increased slightly to 32% in 2020, but this improvement was insufficient to restore the

programmes to the required level and the previous effectiveness (Oranga *et al.*, 2022). Furthermore, the government programme called self-reliance education which needs each pupil to produce food at school as a school project, and the produced food is to be used to feed all the pupils at school. However, when the harvested food runs out, the pupils stop receiving meals, various school meetings are held and school committees advise that parents and caregivers should contribute food to the schools once the school food projects end. However, it has been different in many primary schools within the Nzega District; the majority of parents and caregivers did not contribute, perhaps due to several factors. If this study on parents' and caregivers' engagement in SFPs had not been conducted, the victims of the studied problem, especially pupils, parents, caregivers, local leaders, and teachers would continue suffering from the adverse effects of the parents' and caregivers' reluctance to engage in SFPs through making contributions. Local leaders would have also remained missing technical advice on what to do for active engagement of both parents and caregivers in the SFPs. The successful implementation of SFPs relies heavily on the active engagement and ownership of the local community members including parents and caregivers.

Several previous studies have examined various factors related to parental engagement in SFPs. Watkins *et al.* (2015) investigated the impact of parental education on engagement in SFPs and found a positive correlation between higher levels of education and increased

engagement. Roothaert *et al.* (2021) studied the influence of socioeconomic status on parental engagement in SFPs and revealed that families with lower income levels were less likely to financially contribute to the SFPs. These studies shed light on important factors but do not comprehensively address all parents' and caregivers' aspects for low engagement in SFPs; thus, several factors remain relatively unexplored. One such aspect is the influence of parents' and caregivers' attitudes towards provided primary education, awareness of SFPs, and attitudes towards SFPs. This study, therefore, intended to bridge this gap by examining the influence of parents' and caregivers' attitudes towards provided primary education, awareness on SFPs, and attitudes towards SFPs on engagement in SFPs. The study provides a comprehensive understanding of the factors that motivate or hinder parents and caregivers from actively engaging in primary SFPs in Nzega District, Tanzania. Thus, the guiding question of the study was; To what extent do factors like income, education level, awareness of SFPs, attitude towards provided primary education, and attitude towards SFP influence engagement in SFPs? This study assumed that parents' and caregivers' engagement in school feeding programmes is an interplay of a dependent variable (parents and caregivers' engagement) through contribution in SFPs, and the independent variables, namely education level, attitude towards education, attitude towards SFPs, awareness of the programmes, income, and number of income sources, as shown in Figure 1.



**Figure 1. Conceptual Framework**

The study intended to examine factors influencing parents and caregivers' engagement in school feeding programmes in Nzega District. The study was guided by the question 'to what extent do education level, attitude towards offered education (index), attitude towards school feeding programme (index), awareness of SFPs (index), income, and number of income sources influence parents' and caregivers' engagement in SFPs? With a growing emphasis on ensuring the well-being and educational development of children, the findings of this study would inform policies and interventions aimed at improving the sustainability and efficacy of SFPs. In Nzega District, the study is of great importance as it directly addresses the local community's well-being and educational prospects. While shedding light on the factors influencing parents' and caregivers' engagement in SFPs, the research findings might guide local authorities in motivating potential stakeholders, optimising the utilisation of available resources, and strengthening the partnerships between schools and families. In academia this study contributes to the existing body of knowledge on SFPs and engagement of potential stakeholders. The study offers valuable insights that can be referenced by researchers and educators, facilitating a deeper understanding of the dynamics between parents and caregivers, schools, school committees, and government initiatives. Facts on factors that influence potential stakeholders' engagement in SFPs necessitate

policy review and enable scholars to refine theories and models related to community members' engagement in educational interventions; this encourages more informed decision-making in both academia and practical settings.

## 2. Materials and Methods

This study was conducted in Uduka Ward in Nzega District. This ward was purposively selected to represent other wards with low engagement of parents and caregivers in SFP. The study involved three public primary schools: Itanana, Usongwanhala, and Kabanga. Compared to other schools, the three purposively selected schools had more low parents' and caregivers' engagement in the SFP, as from 2019 to 2023, only 30% of the parents and caregivers managed to make their contributions in the SFP. Thus, the study area experienced low parents and caregivers' engagement in SFP, the schools and children were adversely affected by it. Nzega District lies in the central part of Tanzania's mainland, bordered by several other districts, including Uyui to the south, and Kahama to the north. The district is primarily rural, with its economy largely depending on agriculture.

This study used a cross-sectional research design which enabled researchers to examine the relationships and patterns among variables of interest within the given population without observing their changes over time. The design is cost sensitive and generates required data quickly. The study used both primary and

secondary data. Primary data were collected directly from parents and caregivers who were in the feeding programmes in primary schools. The kind of data that were collected were solely on factors influencing parents' and caregivers' engagement in SFPs, and such data provided firsthand insights into the study's perspectives (Wang *et al.*, 2021; Aydin-Ceran, 2021). The study population included all parents and caregivers having children attending primary schools in Uduka Ward. The unit of analysis was the individual parent and

caregiver of the pupils enrolled in the selected three public primary schools. The sample size for each primary school was estimated by using the Yamane (1967) formula that;

$$n = N / [1 + N(e)^2],$$

where;  $n$  = sample size estimate,  $N$  = total population (178 Itanana primary school, 123 Usongwanhala primary school, and 217 Kabanga primary school),  $e$  = level of precision required 0.1. Then, the sample size for each primary school was computed as follows:

**Table 1: Population and sample size estimation**

Primary school name	Parents and caregivers population	Sample size estimation	Sample size
Itanana	178	$n = 178 / (1 + 178 (0.1)^2)$ $n = 178 / (1 + 1.78)$ $n = 178 / 2.78$	64
Usongwanhala	123	$n = 123 / (1 + 123(0.1)^2)$ $n = 123 / (1 + 1.23)$ $n = 123 / 2.23$	55
Kabanga	217	$n = 217 / (1 + 217(0.1)^2)$ $n = 217 / (1 + 2.17)$ $n = 217 / 2.17$	100
<b>Sub-total</b>	<b>518</b>		<b>219</b>
<b>Key informants</b>			<b>8</b>
<b>Grand total</b>			<b>227</b>

Consequently, the study involved 227 respondents, 219 being parents and caregivers, and 8 key informants. The 8 key informants included two from Itanana primary school (the head of the school and the chairperson of the school committee), two from Usongwanhala primary school (the head of the school and the village executive officer) and two from Kabanga primary school (the head of the school and the SFP coordinator). The Ward Executive Officer (WEO) and Ward Education Coordinator (WEC) were also involved.

Both systematic and purposive sampling techniques were used in selecting respondents. A systematic sampling technique was used to select parents and caregivers from the sampling frame. The sampling frame was 518, while the sample size consisted of 219 parents and caregivers. The sampling interval of 2.3 was computed by dividing the population by the sample size ( $518/219$ ). Principally the starting point was supposed to be 2 or less, and researchers decided to start sampling at 2 and

then went on selecting respondents from the list after every  $n$ th term, which was 2, until 219 respondents were picked. This method was appropriate for this study because it was easy to implement due to the accessed sampling frame, was cost-effective, and provided a representative sample of the population of interest. Purposive sampling was used to select the study area, primary schools, and key informants. The purpose of using purposive sampling in this study was to deliberately select key informants who possessed relevant knowledge and experience related to the factors influencing parents and caregivers to engage in SFP through contributions.

Both structured interview and documentary review were used in collecting primary data from respondents. A structured interview using interviewers' administered questionnaire was used to collect primary data from parents and caregivers, and from the key informants to understand their motivations, attitudes, and behaviours towards engaging in SFPs. The key informant interviews were conducted through in-depth and qualitative

conversations with officers believed to possess knowledge and experiences about SFPs, the goal of doing this was to collect rich and descriptive data about the parents and caregivers' engagement in SFPs. Secondary data were obtained from various accessed documents from the IRDP library, and electronic resources through the documentary review method being guided by a checklist. To ensure validity and reliability of the methods and tools, the study employed rigorous procedures, including conducting a pilot study and using Cronbach's alpha test which measured the internal consistency of the instruments. The Cronbach's alpha test confirmed that Likert scale questions in the questionnaire consistently measured the intended variables and hence, generated meaningful data.

Processing of the collected primary data involved editing of the filled in questionnaires by checking for errors and inconsistencies. The collected primary data from the questionnaire were coded, entered, cleaned and verified into IBM-SPSS Statistics version 25 before analysis. The parents' and caregivers' awareness, attitude towards education, attitude towards school feeding programmes were measured by index calculated from the five level Likert scale questions. Positive statements related to parents and caregivers' awareness of SFP, attitude towards education, and attitude towards school feeding programmes were developed in order to estimate respondents' awareness and attitudes. On the posed statements, respondents indicated whether they strongly disagree, disagree, undecided, agree, and strongly agree against each statement. All the statements sought the respondent's opinions on engagement in SFP. The responses were then weighted 1 if the respondent strongly disagreed, 2 if disagreed, 3 if undecided, 4 if agreed, and 5 if strongly agreed against each statement. The score weights from all the statements for each respondent were combined to develop awareness and attitude indexes for the studied variables in the logistic regression model as  $X_2$ ,  $X_3$ , and  $X_4$ . IBM-SPSS Statistics version 25 was used for data processing analysis at different levels. The factors influencing parents' and caregivers' engagement in SFPs were analysed

by using binary logistic regression model and interpretation was done using odds ratios. The model was specified as:

$$(Y_0) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \varepsilon$$

Where:

$Y_0$  = Binary dependent variable defined as 1= if the parent/caregiver engaged in the SFP, 0 = Otherwise

$\beta_0$  = constant term

$\beta_1$ - $\beta_6$  = Regression coefficients for each independent variable

$X_1$ = Respondents' education level given by the number of years in formal schooling

$X_2$ = Numeric independent variable (attitude towards education given as index from Likert scale)

$X_3$ = Numeric independent variable (attitude towards school feeding programmes given as index from Likert scale)

$X_4$ = Parents' and caregivers' awareness of school feeding programmes (given as index from Likert scale)

$X_5$ = Average income per month from different sources in Tanzania Shillings (Tshs) (numeric)

$X_6$ = Number of sources of income a parent or caregiver has (numeric)

$\varepsilon$  = Error term

### 3. Results and Discussion

This section presents findings of the study based on its study objective. The section is subdivided into two sub-sections: respondents' characteristics, and factors that influence parents' and caregivers' engagement in primary school feeding programmes in Nzega District.

#### 3.1. Characteristics of Respondents

This section provides a detailed explanation of the respondents' age, gender, duration in formal education, marital status, level of education, school-enrolled children, and occupation. An analysis of the factors influencing the respondents' engagement in food programmes in primary schools requires a thorough understanding of the background information of the respondents presented in Table 2.

**Table 2: Characteristics of Respondents**

Respondents Variables	Mean	Median	Minimum	Maximum	Range	Std. deviation
Age	42.74	44	24	76	52	7.96
Households size	3	3	1	11	10	1.833
Education (Number of years in formal schooling)	10.86	11	7	18	11	2.397

The numerical summary of the respondents' ages is an important demographic variable shown in Table 2. Half of the respondents were younger than 44 years and the other half were older, with a mean age of 42.74 and a median age of 44 years. The age range of the respondents was 52 years, with a minimum age of 24 and a maximum age of 76. The respondents' ages appear to fluctuate around the mean according to the 7.96 standard deviation, which points to a diverse age distribution among the respondents. Understanding how various age groups contribute to food programmes in primary schools requires an awareness of this age variability. This age diversity implies that various age groups may contribute different viewpoints, resources, and levels of commitment to the SFPs, which may influence the initiatives' efficacy and long-term viability. Comprehending these age differences is essential in customising strategies that successfully involve all age groups in SFs.

A statistical summary of the respondents' household size shown in Table 2 reveals that people live in an average household, with a median size of three people. This means half of the households had three people or less, while the other half had three people or more. There is a range of 10 in the household sizes, from a minimum of one to a maximum of 11. There appears to be some variation in the household composition among respondents, as indicated by the standard deviation of 1.833, which indicates that household sizes vary around the mean. Understanding how household sizes may influence parents' and caregivers' engagement to SFPs depends on the size of households. The respondents' varying household sizes imply that larger households would be under more financial strain, which might limit their capacity to support school feeding programmes. These findings are in line with Williams et al. (2022b) and Samata (2019)

who contend that larger household size can negatively impact community members' engagement in community development projects due to increased time and resource demands. Individuals in larger households may face more time constraints and strain on their resources, potentially hindering their ability to dedicate time and effort to community initiatives. This result suggests that household size should be considered in initiatives to boost community members' engagement in these programmes, as larger families may need more support or different engagement strategies. Designing more inclusive and successful SFP can be supported by having a better understanding of these dynamics.

The average length of formal education among respondents was 10.86 years, with a median of 11 years, according to the statistical summary of the respondents' years in formal schooling as presented in Table 2. There was a range of 11 years between the minimum of 7 and maximum of 18 years that one can spend in formal education. The moderate variation in the respondents' educational level was indicated by the standard deviation of 2.397. These results imply that most of the respondents had attained at least a basic education and some had even pursued more education than the average. Because respondents with more years in formal schooling may understand the significance and implementation of such initiatives better, this variation in educational attainment may have an impact on respondents' comprehension and engagement in SFP. To ensure more widespread and efficient engagement in school feeding programmes, it is imperative to comprehend the educational background of respondents in order to build effective communication and engagement techniques that can accommodate varied levels of educational attainment.

**Table 3: Education Level of the Respondents**

<b>Educational Level</b>	<b>Frequency</b>	<b>Percent</b>
Secondary education O-level	123	56.2
Primary education	41	18.7
Secondary education A-level	28	12.8
Bachelor degree	15	6.8
Ordinary diploma	5	2.3
Master degree	4	1.8
Non-formal education	2	0.9
PHD	1	0.5
<b>Total</b>	<b>219</b>	<b>100.0</b>

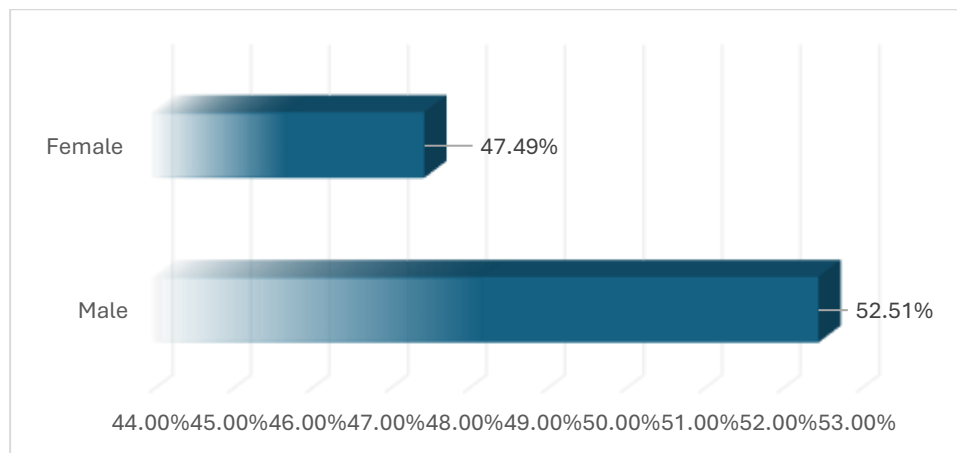
The respondents' attained education levels are also presented in Table 3. Where 56.2% of the respondents completed secondary education at O-level, followed by 18.7% with primary education. This distribution shows a significant variation in the respondents' educational attainment, which may influence their opinions and contributions to primary SFPs. The findings in Table 3 emphasize the predominance of respondents with secondary education. These findings have implications that point to a possible relationship between respondents' secondary education and their perceptions, attitudes, awareness, and engagement in SFPs. Greater understanding, and appreciation of the advantages of these programmes may be correlated with higher educational achievement, which may encourage more active engagement through contributions. On the other hand, people with less education may need more help, and knowledge to engage effectively in these programmes. Scholars argue that parents with higher education levels tend to be more engaged in community development projects than those with lower education levels. Higher education often equips individuals with the skills and knowledge to understand community issues, identify opportunities for involvement, and effectively advocate for projects that benefit their communities (Shukia and Marobo, 2024). Therefore, the influence of parents' involvement in their children's academic achievement in Tanzania is very important and needs to be well understood (Mwakililo and Mgya, 2021). This emphasises that to increase general engagement in SFP,

targeted communication strategies that consider different educational levels are required.

The respondents' gender in Figure 3 shows that 52.5% of responders were male and 47.5% were female. The rough balance of respondents' gender guarantees that the study fully represents the perspectives and contributions of both male and female respondents. This balance is graphically confirmed by the data in Figure 2 which show that both genders were engaged in the survey at nearly equal rates. Understanding any gender-specific characteristics that influence engagement in SFP programmes requires knowledge of this information. The findings' implications suggest that the nearly equal engagement of male and female respondents offers a thorough understanding of the ways in which gender influences engagement in SFP. The assessment of any gender-specific barriers or motives that may impact engagement levels is made possible by this equal representation. Subsequently, this enables policymakers and programme coordinators to create more inclusive approaches that cater to the distinct requirements and viewpoints of both sexes, thereby enhancing the efficiency and sustainability of school feeding initiatives. It is imperative to acknowledge and tackle these differences in order to promote equitable engagement and optimise the effects of said endeavours. These findings concur with Ong et al. (2024) assertion that gender variations significantly impact community members' engagement in development projects. Ignoring gender differences can lead to projects failing

to address the needs of diverse groups, potentially hindering their overall success. By understanding and addressing gender-specific

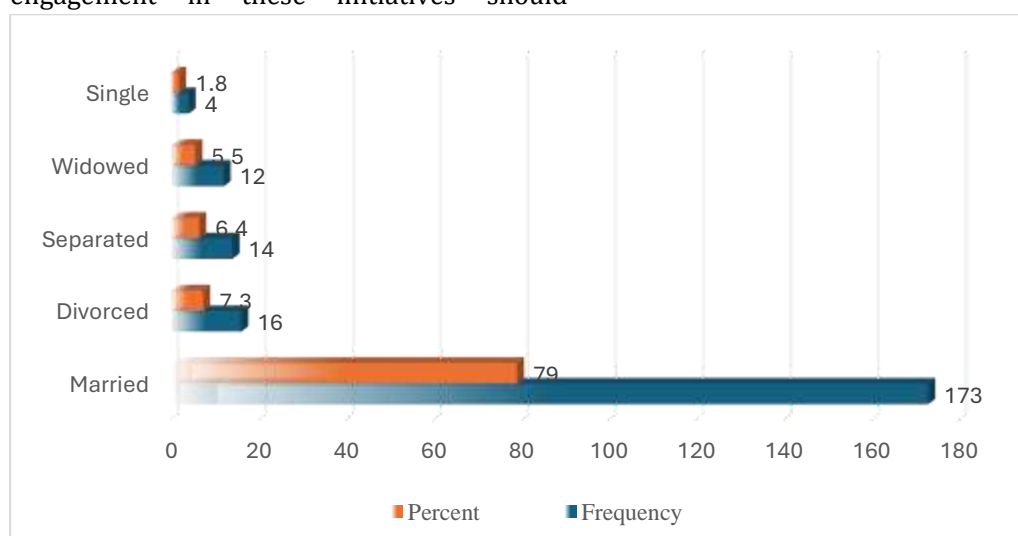
issues, projects can increase participation, ensure equitable access to resources, and promote sustainable outcomes.



**Figure 2. Distribution of respondents by gender**

The respondents' distribution by marital status shown in Figure 3 reveals the most frequent marital status among the participants, with 79.0% of respondents being married. The 219 respondents in total provide a comprehensive picture of marital status within the study population. To comprehend the possible impact of marital status on engagement in SFPs, this marital status data is essential. The results indicate that marital status large proportion of respondents being married may have a major impact on how much parents and caregivers contribute to SFPs. This finding implies that strategies aimed at increasing engagement in these initiatives should

consider the unique dynamics and responsibilities connected to a person's marital status. This observation concurs with Odoom et al. (2021) and Mohamed et al. (2023) conclusions that marital status can indirectly influence community members' engagement in development projects, but it is not a direct determinant. Several factors, including gender, education level, and household income can impact participation rates, and these factors may intersect with marital status. For instance, married individuals might have different time constraints or priorities than single individuals due to family responsibilities



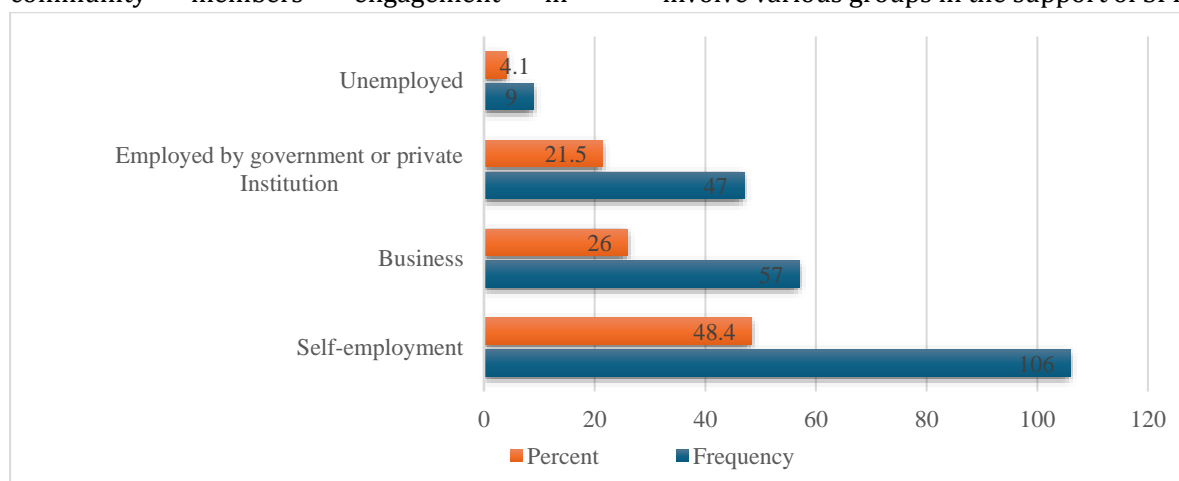
**Figure 3. Distribution of Respondents by marital status**

Data in Figure 4 present the respondents' occupation status. The data indicate that 48.4%

of respondents were self-employed which represents most respondents. Those in the

business sector comprised 26% of the sample, a sizable proportion of 21.5% of respondents worked for the government or private institutions. These results show the distribution of professional statuses among the respondents. This wide range of occupations is essential to comprehend how various work environments influences people's engagement in SFP. The findings imply that respondents varied professional backgrounds may have a substantial influence on their capacity and inclination to support school feeding programmes. Most self-employed people may have more flexible schedules that enable them to actively engage in school-related activities. Occupation status can significantly influence community members' engagement in

development projects, impacting participation levels, project success, and equitable benefits distribution. Those with higher levels of employment or income are more likely to participate, while those with less stable or lower-paying occupations may face challenges (Samata, 2019; Osore et al., 2022). Their contributions may not be reliable because of their inconsistent income stability. Although their time limits may dictate their direct engagement, those in the industry, government, or private institutions may have more stable salaries and therefore, be able to make more consistent contributions. It is essential to comprehend these occupational dynamics to create approaches that effectively involve various groups in the support of SFPs.



**Figure 4. Occupation Status of the Respondents**

### 3.2. Factors influencing parents' and caregivers' engagement in school feeding programmes

Analysis of factors influencing parents' and caregivers' engagement in SFP employed a binary logistic regression model whereby variables were subjected to reliability testing for independence, descriptive statistics for independent variables and binary logistic regression. The analysis focused on analysing the influence of parents' education level, income, number of income sources, attitude towards education, attitude towards SFP, and awareness of programmes. Ahmad and Mir (2021) define reliability testing as the measures' and outcomes' consistency and stability over several observations. It was crucial to determine the reliability and precision of the study's findings. A widely used

reliability statistic called Cronbach's alpha coefficient was used to evaluate the internal consistency of the instrument. A Cronbach's alpha score of 0.7 or higher in the estimation of most respondents indicates appropriate reliability (Ahmad and Mir, 2021). This cut-off point demonstrates how each scale item in the Likert scale questions appropriately measured the same underlying idea. A Cronbach's alpha of more than 0.7 often indicates a high level of internal consistency and a constant relationship between the scale's items. The reliability test results for the independent variables, as determined by Cronbach's alpha, are shown in Table 4. All the tested variables revealed outstanding reliability according to the data. The Cronbach's alpha for the number of years in formal schooling is 0.763, indicating a satisfactory level of internal consistency. The

Cronbach's alpha values of 0.842 and 0.854, respectively, indicated excellent reliability of the variables like 'number of income sources' and 'average income'. With a reliability coefficient of 0.777, the variable 'attitude towards education' had good consistency. With Cronbach's alpha values of 0.826 and 0.753, respectively, 'parents and caregivers' awareness of SFPs' and 'attitude towards SFPs' both showed excellent reliability. The validity of the findings about the factors influencing parents' and caregivers' engagement in SFPs is supported by these reliability coefficients which guarantee the reliability and consistency of the measurements used in the study.

**Table 4: Reliability test of the independent variables**

Items	Cronbach's Alpha test
Average income in Tsh	0.854
Number of income sources	0.842
Parents and caregiver's awareness on school feeding programmes (index)	0.826
Parents and caregivers' attitude on education provided (index)	0.777
Education level (Number of years in formal schooling)	0.763
Parents and caregivers' attitude toward School feeding programmes (index)	0.753

Descriptive statistics for the independent variables are shown in Table 5. There is a significant variation in the respondents' level of education as seen by the mean of 8.99 years, a

**Table 5: Descriptive statistics for regressor variables**

Items	Mean	Median	IQR	Minimum	Maximum	Std. deviation
Education level (number of years in formal schooling)	8.99	11	4	1	17	4.22
Number of income sources	2	2	1	1	5	0.824
Average income (Tshs)	290838.66	285000	175000	100000	375000	140724.53
Parents and caregivers' attitude on education provided (index)	4.06	4	0.43	3	5	0.284
Parents and caregivers' awareness on school feeding programmes	4.42	4	1	2	5	0.70
Parents and caregivers' attitude towards School feeding programmes	4.25	4.29	0.43	3.43	5	0.276

With a range of 100,000 to 375,000 and a median of 285,000, the respondents' average

range of 1 to 17 years and a median of 11 years in formal education. This variation points to a varied educational background which can have an impact on their engagement in SFPs. With a mean of 2, a median of 2, and a range of 1 to 5, the variable 'number of income sources' suggests that most respondents had a small number of sources of income. This finding emphasises possible financial limitations that could limit respondents' capacity to support school feeding initiatives. The results in Table 5 suggest that respondents' engagement in SFPs may be influenced by the wide range of their income and education levels. The more educated the respondents the more they might be able to comprehend and support SFPs, while the less educated parents and caregivers might completely find it difficult to engage. Furthermore, the restricted number of sources of income mentioned by many respondents raises the possibility of financial limitations that may limit their capacity to fund SFPs. This is consistent with Lerner and Nanda (2020) who emphasise that funding constraints frequently limit contributions to public programmes. Additionally, Stewart and Alrutz (2022) in their study observed a positive relationship between improved education levels and greater community members' engagement in projects. Developing focused ways to increase engagement in SFPs requires an understanding of these educational dynamics.

income being roughly 290,838.66 indicates a considerable degree of income inconsistency.

This variation in income could influence the amount donated for SFPs. The average response for 'attitude towards education' is 4.06, with little variation (IQR of 0.43) indicating that most parents and caregivers place a high value on educational attainment. With a mean score of 4.42 and a range of 2 to 5, the 'parents' and caregivers' awareness of SFPs' indicates strong awareness among them, which probably has a beneficial impact on their engagement in SFPs. Positive attitude towards SFPs is indicated by parents and caregivers by the mean of 4.25 with limited variance (IQR of 0.43). These results show that parents and caregivers' engagement in SFPs is significantly influenced by their educational level, financial situation, and views toward SFPs. The results suggest that respondents' engagement in SFP through contributions is highly influenced by differences in awareness, educational attainment, and income. Given the wide range of incomes, it is possible that a person's ability to give could influence the amount contributed, with higher incomes possibly translating into larger contributions. Respondents who have high educational values, and a good understanding of SFPs are more likely to actively engage because they understand the significance of the programmes. A favourable attitude regarding school meals also encourages their engagement. This observation is consistent with the findings of Stewart and Alrutz (2022) study which assert that engagement in SFPs is boosted by the increased awareness and favourable attitudes. In a similar vein, Lerner and Nanda (2020) brought attention to the beneficial correlation

between greater engagement in school-based activities, financial stability, and educational success.

The extent to which education level, number of income sources, income gained per month, parents' and caregivers' attitude on education, awareness on SFP, and attitude towards SFP influence the parents' and caregivers' engagement in SFP was captured by multivariate analysis through binary logistic regression, whose results are presented in Table 6. The data indicate the education level given in number of years of formal schooling having an odds ratio of 1.27, a significance level of 0.030, and a positive coefficient of 0.239. This means that the likelihood of parents and caregivers to engage in SFP increases by 27% for every additional year of formal schooling. Since the significance level (p-value) of 0.030 is less than the typical threshold of 0.05, the influence of education level on engagement in SFP is statistically significant. This is a noteworthy finding that suggests a positive correlation between engagement in SFP and academic attainment. During the interview the head of Kabanga primary school (AA5) supported that the higher the education level the more the chance a parent or caregiver can engage in SFP through contributions. AA5 stated that:

*"Parents with higher educational levels tend to be more engaged in school activities, including the school feeding programmes. They understand the value of these programmes for their children's education and well-being." (Interview with AA5 July 2024).*

**Table 6: Binary logistic regression results for factors influencing parents and caregivers' engagement in SFP**

Variables	B	S.E.	Wald	df	Sig.	Exp (B)	95% C.I. for EXP(B)	
							Lower	Upper
Education level (number of years in formal schooling)	0.239	0.042	0.246	1	.030	1.27	0.954	1.54
Number of income sources	0.068	0.213	0.102	1	.025	1.070	0.705	1.626
Average income (Tshs)	0.109	0.156	0.245	1	.021	1.12	0.869	1.782
Index for parents and caregivers' attitude towards education provided	0.159	0.652	0.059	1	.008	1.172	0.326	4.210
Index for parents and caregivers' awareness SFP	0.477	0.236	4.081	1	.043	1.611	1.014	2.560
Index for parents and caregivers' attitude towards SFP	0.335	0.633	0.281	1	.036	1.399	0.405	4.834
Constant	3.029	3.364	0.811	1	.018	.048		

Similarly, the chairperson of the school committee from Itanana Primary School (AA2) supported the finding by stating that the villagers with higher education show more collaboration in contributing food for the pupils at school. AA2 stated that:

*"We observe that those parents who have spent more years in schooling are more likely to contribute and engage in the school feeding programmes as they see it as an essential part of their children's education." (Interview with AA2 July 2024).*

These findings imply that parents and caregivers who have spent many years in formal education are more likely to engage in SFPs. Every extra year of education increases the likelihood of engagement, suggesting that educational attainment has a beneficial influence on engagement in SFP. These results are in line with those of Watkins *et al.* (2015) and Middha (2022) who have reported that educational attainment has a major impact on how successful SFPs are. Findings of this study revealed that parents and caregivers who spent many years in formal education are more likely to be aware of the nutritional advantages and to support their kids' engagement in schooling and other initiatives.

Parents and caregivers number of income sources with odds ratio (Exp(B)) of 1.070, coefficient (B) of 0.068 and p-value of 0.025

indicate that for every additional income source, the likelihoods of parents and caregivers being engaged in the SFPs increase by 7% ( $1.070 - 1 = 0.07$ ). Thus, the likelihood of the parents and caregivers to engage in SFPs increases by about 7% for every additional source of income. The significance level of 0.025 indicates that the observed increase in engagement due to additional income sources is statistically significant. The coefficient 0.068 represents the change in the dependent variable (log-odds of parents and caregivers engagement) for every one unit increase in the independent variable (number of income sources). This means for every additional income source, the log-odds of parents being engaged in the school feeding program increases by 0.068. During the interview the head of Itanana primary school (AA1) reported that the parents and caregivers with more sources of income have more chances to engage in SFP than those with limited sources. AA1 stated that;

*"Parents with multiple sources of income are more willing and capable of contributing to the school feeding programmes. Their financial flexibility significantly influences engagement through contributions." (Interview with AA1 July 2024).*

Similarly, during the interview, the village executive officer from Usongwanhala primary school (AA4) supported the idea that parents

and caregivers with more sources of income contribute to more chances to engage in SFP. AA4 commended that;

*"We've observed that families with additional income sources tend to engage more actively in school feeding programmes, including feeding initiatives, because they are less financially constrained." (Interview with AA4 July 2024).*

These results imply that parents and caregivers are far more likely to engage in SFP if they have several sources of income. More specifically, the likelihood of engaging in these programmes increases by about 7% for every extra source of income. This demonstrates how crucial diverse sources of income is in increasing community members' engagement in SFP. The findings of this study concur with Massucco (2020) and Roothaert *et al.* (2021) who emphasise that financial constraints significantly influence parents' ability to contribute to SFP. The study reveals that parents with fewer income sources are more likely to face challenges in providing monetary support or food items, echoing the observation that economic limitations can impede active engagement in such programmes.

The average income has a considerable impact on parents' and caregivers' engagement in SFPs. Income with an odds ratio of 1.12 and a statistically significant p-value of 0.021, the coefficient for average being 0.109 (Table 6), means that for every unit increase in average income, the likelihood of engagement increases by 12%. The analysed data suggests that an average income is a statistically significant predictor of engagement in SFPs, and the relationship between the two is unlikely to be due to chance. An odds ratio of 1.12 indicates that for every unit increase in average income, the likelihood of parents' and caregivers' engagement in SFPs increases by approximately 12%. The significance level (0.021) means the observed relationship between income and engagement in SFPs is statistically significant. The coefficient (0.109)

represents the change in the likelihood of engagement for a one-unit change in average income. In this case, the likelihood increases by 0.109 for each unit increase in average income. In essence, the findings suggest that higher income is associated with a greater likelihood of parents' and caregivers' engagement in school feeding programmes, and this association is statistically significant. This means that policies or interventions aimed at increasing engagement in these programmes could consider targeting households with lower incomes. These results imply that parents' and caregivers' ability and desire to engage in SFPs largely depend on their financial stability, with higher income levels favouring this ability. This emphasises how crucial financial assistance and resources are in encouraging a higher level of community members' engagement in kids' development initiatives. The ward executive officer from the study area supported the findings by stating that parents with high income have a higher probability of engaging in SFP compared to those with low income. AA7 said that:

*"Parents with higher incomes are more likely to contribute to the school feeding programmes because they can afford to do so without compromising their household needs." (Interview with AA7 July 2024).*

Similarly, the findings were supported by the ward education coordinator who said that the higher the income of the parents and caregivers the higher the probability of engagement in SFP. AA8 stated that:

*"Financial stability plays a significant role in whether parents and caregivers can actively engage in the school feeding programmes. Those with better income are more willing and able to contribute regularly." (Interview with AA8 July 2024).*

The findings of this study support those of Knill and Steinebach (2022) and Roothaert *et al.* (2021) who claim that parents' abilities to donate to SFPs change depending on their income levels. Parents with higher incomes are better and able to financially support feeding programmes, while parents with lower

incomes can find it difficult because of a lack of resources. The impact of financial capacity on family engagement in SFP is revealed by these findings.

The influence of parents' and caregivers' attitude towards education on engagement in SFP was examined by binary logistic regression analysis as shown in Table 6. The parents and caregivers' attitude towards education with the odds ratio  $\text{Exp}(B)$  of 1.172, significance level of 0.008, and regression coefficient ( $B$ ) of 0.159 reveal the existence of a positive and statistically significant association between parents' and caregivers' attitude towards education and engagement in SFPs. Explicitly, the odds ratio of 1.172 indicates that for every one unit increase in the parents' and caregivers' attitude toward education, there is an increase in engagement by 17.2%. The significance level of 0.008, which is less than the threshold of 0.05, suggests that this relationship is statistically significant, denoting that it is unlikely to be due to random chance. The coefficient of 0.159, also reflects a positive and statistically significant impact of parents' and caregivers' attitudes towards education on engagement in SFPs. These results imply that parents' and caregivers' engagement in SFPs is highly influenced by their favourable opinions toward the provided education. Parents and caregivers are more likely to support efforts that assist their children's education when they place a higher importance on education. This emphasises how crucial it is to foster favourable views about education to increase parents and caregivers' engagement in school-related initiatives. The results of this study concur with the findings of Irwin *et al.* (2023) who declare that parents' favourable perceptions of the advantages of SFPs have a substantial impact on their degree of engagement. This study demonstrates that parents' and caregivers' engagement is more likely when there is a positive assessment of the programme's effects on children's health and education. This validates the finding of Irwin *et al.* (2023) that perceived advantages of initiatives promote proactive engagement.

The binary logistic regression findings which centre on the impact of parents' and caregivers' awareness on SFPs on engagement of the same are shown in Table 6. This variable has a coefficient ( $B$ ) of 0.477 and a standard error of 0.236. The results indicate that a higher level of parents' and caregivers' awareness about school feeding programs is significantly associated with greater parent engagement in school feeding programmes. Definitely, an increase in parents' and caregivers' awareness is linked to a 1.611 times increase in the odds of parents and caregivers likelihood of engaging in school feeding programmes, with a statistically significant p-value of 0.043. The coefficient of 0.477 further reinforces this positive relationship, indicating that for every unit increase in awareness, the log-odds of engagement increases by 0.477 units. The findings were supported by the interview results from Village Executive Officer (VEO) from Usongwanhala primary which showed that the parents and caregivers who are aware of SFP show a willingness to engage in feeding programmes in primary schools. AA4 stated that;

*"Increased awareness among parents and caregivers about the importance of school feeding programmes significantly boosts their willingness to engage. When they understand the benefits, they are more likely to contribute."* (Interview with AA4 July 2024)

Similarly, the Ward Education Coordinator during the interview showed that parents and caregivers who are aware of SFP show a willingness to engage in feeding programmes in primary schools. AA8 commended that;

*"Awareness is crucial when parents and caregivers are informed about how these programmes improve their children's education and their well-being, their engagement naturally increases."* (Interview with AA8 July 2024).

The results imply that parents' and caregivers' increased knowledge about SFPs greatly increases their engagement. This highlights how crucial it is to have clear lines of

communication and launching educational campaigns to guarantee that a larger segment of the community supports SFPs. The findings of this study are also consistent with those of Semegn *et al.* (2023) who proclaim that raising community members' engagement in SFPs requires parents and caregivers to be aware of and comprehend these programmes. According to the findings of this study, parents and caregivers who are more aware of the programmes tend to engage more than others. This supports the notion that well-informed parents are more likely to get beyond obstacles and take an active role in promoting the SFPs. The influence of parents' and caregivers' attitudes towards SFPs was examined by binary logistic regression analysis as shown in Table 6. The data reveal parents and caregivers' attitude towards SFP with an odd ratio  $\text{Exp}(B)$  of 1.399, regression coefficient ( $B$ ) of 0.335, and a significance level of 0.036. These data reveal that parents' and caregivers' attitudes towards SFP positively influence their engagement in SFP. The findings indicate that for every unit increase in parents' and caregivers' attitudes, there is a 33.5% increase in the likelihood of the parents and caregivers engaging in the SFP, and this influence is statistically significant, meaning it is unlikely to be due to chance. The findings were supported by the interview with the head of Itanana primary school who reported that the parents and caregivers with a positive attitude towards SFP actively engage through contributions. AA1 stated that;

*"Parents who have a positive attitude towards the school feeding programmes are more likely to contribute and engage actively in the feeding initiative."*  
(Interview with AA1 July 2024).

Similarly, the ward education coordinator during the interview had a similar idea that parents and caregivers with positive attitudes towards SFPs are not reluctant in making contributions. AA7 stated that;

*"When parents see the benefits of the school feeding programmes, their willingness to engage increases significantly. This positive attitude directly*

*influences their level of engagement."*  
(Interview with AA7 July 2024).

The findings imply that parents and caregivers are far more likely to engage in SFPs when they have a more positive attitude towards community development activities. This emphasises how important it is to cultivate positive attitudes and perceptions within community members, since raising awareness of the programmes may result in increased support and engagement for SFPs. The results of this study accord with those of Drahanaky *et al.* (2016) who argue that social norms and community engagement have a major impact on parents' and caregivers' engagement in SFPs. The study emphasises that parents and caregivers' engagement in SFPs through contributions increases when there is a positive attitude and significant community support.

#### 4. Conclusion and Recommendations

This study underscores the significant impact of parents' and caregivers' educational level, income level, number of income sources, awareness, and attitudes on education and the SFPs. Individuals with higher levels of education are more likely to actively participate due to their better understanding of the programmes' benefits. Furthermore, positive attitudes towards education, and school feeding initiatives, alongside greater awareness of SFPs are key drivers of community members' engagement in SFPs. Financial capacity, influenced by income levels, and multiple sources of income, also plays a critical role in facilitating potential stakeholders' engagement in the SFPs. Policies or interventions aimed at increasing engagement in SFPs could consider targeting households with lower incomes, individuals with low education levels, individuals not being aware of SFPs, individuals with negative attitudes towards education provided and the SFPs. By engaging parents and caregivers through workshops and informational sessions, the ministry responsible for primary education can cultivate a better understanding among parents and caregivers on how SFPs

positively affects pupils' health and educational performance, thereby increasing participation and support for running the SFPs. To improve planning and implementation, community development offices should collaborate with many stakeholders to work on household income poverty reduction interventions, and community awareness raising on the benefits of SFPs. To increase parents' and caregivers' engagement in school feeding initiatives, it is advisable for the responsible ministries to improve individuals' education levels, households' incomes and launch targeted awareness raising and mindset change campaigns on provided education and the school feeding programmes. These campaigns should work together with community leaders and employ various communication approaches to connect with diverse groups, foster a sense of ownership and promote active participation in the programmes. Furthermore, to improve the engagement of parents and caregivers in SFPs, it is essential for the Nzega District Council to develop and enforce explicit regulations and guidelines that facilitate effective coordination among education stakeholders, such as local authorities, schools, and community based organisations.

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