



# The effect of Maternal Occupation on Feeding Practices and Nutritional Status of 6-30 Month Aged Children in Urban Areas of Mzimba District, Malawi

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**Abstract:** *Malnutrition remains a significant issue among under-five children in Malawi, with a prevalence of 47% stunting, despite various interventions and education efforts. Inadequate childcare, including maternal employment, can impact child-feeding practices and reflect the child's nutritional status. To assess the effect of maternal occupation on feeding practices and the nutritional status of young children, a cross-sectional study was conducted in selected urban areas of Mzimba District in Northern Malawi. The study involved 300 young children (6-30 months). Data on demography, socio-economic status, child morbidity, dietary practices, household food situation, and child health were collected using a structured household questionnaire. The findings revealed that children of teachers consumed more vegetables and legumes compared to children of housewives and businesswomen. Only 50% of businesswomen's children met WHO-recommended meal frequencies. Significant differences were observed in energy and nutrient intakes compared to recommended dietary allowances. Children of businesswomen were shorter than children of housewives and teachers. The study concludes that maternal occupation influences feeding practices and the nutritional status of children. These findings highlight the importance of addressing childcare practices and nutritional education within the context of maternal employment to improve child nutrition in Malawi.*

**Keywords:** *Nutritional status, Feeding practices, Maternal occupation, Urban Areas, Mzimba District*

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## 1. Introduction

Gibson (2005) and Simeon et al. (2015) defined nutritional status as the current body status of a person or population group related to their state of nourishment. The nutritional status of under-five children is of particular concern since the early years of life are crucial for future growth and development. Globally, nutritional status is considered the best indicator of the well-being of young children and a

parameter for monitoring progress towards the Millennium Development Goals (MDGs), especially MDG number one which is to eradicate extreme poverty and hunger (Cafiero et al., 2018; World Health Organization 2022). Akhtar, (2016) and Mishra, & Mishra, (2020) indicated that in developing countries, it is estimated that 50.6 million children aged less than five years are malnourished. Harris, & Nisbett, (2021) reported that the conceptual framework of the United Nations Children's Fund, there are multiple causes of malnutrition and inadequate childcare is one of

them. In some cases, inadequate care is due to maternal employment (Manziona et al., 2019; Nankinga et al., 2019).

Kristo et al. (2021) reported that maternal employment influences child-feeding practices thus reflecting the child's nutritional status. Glick (2002) and Udoh & Amodu, (2016) reported that in almost all societies around the world, women are assigned by custom to be the primary caregivers of infants and children. Glick (2002) further reported that activities carried out by women such as breastfeeding, preparing food, collecting water and fuel, and seeking preventative and curative medical care are crucial for a child's healthy development. Vaida (2013) also supported Glick (2002) that, such activities are likely to be essential for family survival in developing countries. Because of time constraints, women face, however, their roles as caregivers and as providers of family income may conflict with one another, potentially impacting negatively on the welfare of children (Farhana and Naleena, 2012). In this modern era, most mothers have joined the labour force compared to previous times. In Malawi, labour force participation by women is very high including married women. The 2010 Malawi Demographic Healthy Survey (MDHS) (NSO and ICF MACRO, 2011) reported that 76 % of married women were employed. A key issue however is how women's employment affects the nutritional status of children. Menalu et al., (2021) reported that the prevalence of underweight and malnutrition was higher among under-five children of working mothers than among housewives. Similarly, a study done by Mittal *et al.* (2007) reported that 46% of the children were underweight and 59% were stunted where mothers were working and 38% were underweight and 45% were stunted where the mothers were housewives. At the same time, Pierre- Louis *et al.* (2007) and Win et al. (2022) reported that under-five children of businesswomen (self-employed) had relatively higher weight than children of mothers working for wage employment. Begum et al. (2021) found that children whose mothers were businesswomen were more undernourished than those of housewives.

At a theoretical level, UNICEF developed a comprehensive conceptual framework for explaining the immediate, underlying, and basic causes of malnutrition (Wali et al., 2019). At the underlying level, the determinants include household food security, care of the child, health services, and a healthy environment. Food security is realized when a person accesses enough food to manage a healthy life (Holben and Marshall, 2017). The resources necessary for gaining access to food are food production, income for food purchases, or in-kind transfers of food.

Smith and Haddad (2000), and Rahman et al. (2016),

Rahman et al. (2017) noted that no matter how much food is available; children ought to be cared for by others. This aspect of child nutrition is captured in the concept of care for children and their mothers who are naturally their main caretakers after they are born. Care, as part of the second underlying determinant, is captured by variables such as when mothers initiated breast milk, complementary feeding based on age, appropriate feeding frequency and giving of minimum acceptable diet (Ajieroh, 2009; Aryastami et al., 2017). This explains the inclusion of variables such as the mother's occupational status which reflects whether the mother works to earn income and even decides alone on the use of her earned income (Ajieroh, 2009). Maternal occupation fits inadequate care in the conceptual framework of causes of malnutrition (UNICEF, 2008), inadequate care leads to frequent illnesses and inadequate dietary intake which are finally the immediate causes of malnutrition. The revised studies have shown that women provide most of the child care (Glick 2002, Vaida, 2013; Farhana and Naleena, 2012). Women throughout the world play a major role in determining the nutritional status of their families, more especially children. The mothers' employment status is believed to have potential implications for virtually all aspects of children's growth and development including nutrition outcomes (Win et al., 2022). The quality of children's diets and their subsequent physical health may depend significantly on whether their mothers work outside the home and the time they spend at work or not. In particular, the employed mothers may themselves have less time available to look after their children such as through the preparation of their children's meals and feeding them or supervising their children's feeding-related activities if undertaken by another person, such as a maid. On the positive side, the additional income brought into the household by employed women may help to ensure a stable supply of high-quality food (Crepinsek and Burstein, 2004; Ruel et al. 2017).

Prevalence of malnutrition in under five children remains high in Malawi exhibited with 47% chronic malnutrition as reported by MDHS 2010 (NSO and ICF Macro 2011; Ntenda, 2019). This is even though the government and its partners have implemented various nutrition intervention programs in all districts in Malawi to reduce malnutrition (Mazinga, 2014). The fact that the prevalence of malnutrition remains high implies that other challenges are experienced and are not addressed.

This study, therefore, explored how maternal occupation affects the nutritional status of children 6-30 months of age. This study has significant implications for mothers, nutritionists, policymakers, and the general body of knowledge. It will assist mothers in planning meals and care practices for their 6-30 month-old children before leaving for work, improving their nutritional status. The

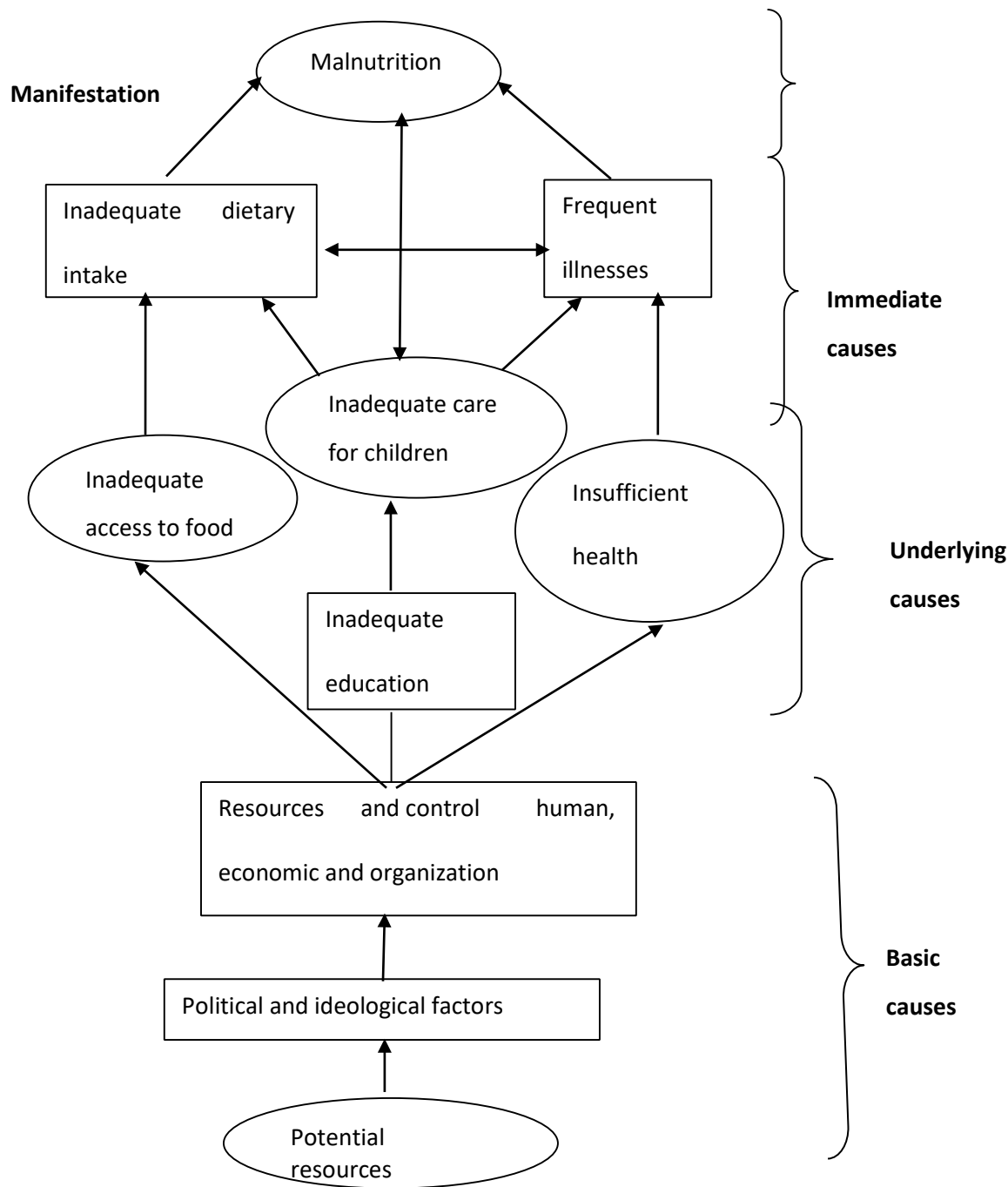
results will provide baseline information for designing targeted interventions to reduce malnutrition in Malawi, benefiting nutritionists and policymakers. Furthermore, the study contributes to our understanding of how maternal occupation influences the nutritional status of young children, enhancing the general body of knowledge in this field and paving the way for further research and comprehensive interventions.

## **2. Literature Review**

### **2.1 Conceptual framework of malnutrition causes**

The nutritional status of children is influenced by a range of factors, including the economic and educational status of parents, environmental disease prevalence, sanitation

conditions, and the availability of health services, including maternal care. These factors can have both positive and negative impacts on children's nutrition (Pierre-Louis et al., 2007). According to a United Nations Children's Fund (2008) study, malnutrition has multiple causes, one of which is inadequate childcare (Figure 2.1). Ahmed et al., (2013) and Farhana and Naleena (2012) highlighted that maternal employment can contribute to insufficient care in some cases. The framework identifies three levels of malnutrition causes: immediate, underlying, and basic. Immediate causes include inadequate dietary intake and frequent illnesses; underlying causes encompass food insecurity, poor maternal and child care, inadequate health services, unhealthy environments, and insufficient education; while basic causes involve political, economic, and ideological structures, as well as resource control and organization.



**Figure 1: Conceptual framework of causes of malnutrition. Source: UNICEF (2008)**

## 2.2 Immediate causes of malnutrition

Frequent illnesses can hinder the body's ability to meet nutritional needs, even when food is available. According to Van Der Velde et al. (2019), infections may reduce appetite, increase nutrient requirements, or impair nutrient

absorption. For instance, diarrhea can shorten transit time and damage the gut lining, thereby reducing nutrient absorption. As a result, the body may break down its own tissues to obtain the nutrients it needs, leading to weight loss and potentially underweight conditions (Mtimuni et al., 2010). Inadequate dietary intake can also result from

the unavailability of food or its unequal distribution within

customs rather than nutritional needs. For example, adults may receive larger portions of protein-rich foods, while infants and young children, who require more protein, receive less. Geresomo, (2019) and Chen et al. (2021) noted that even when food is available, some family members—particularly women and children—may not receive enough. Inadequate food intake can result in low nutrient intake, increasing children's vulnerability to infections and reducing immunity. Vaida (2013) reported that inadequate maternal care can contribute to reduced immunity, while Smith and Haddad (2000) and Klein et al. (2021) suggested that the lack of commitment from caregivers to provide available food to children can also lead to insufficient nutrition. This situation is exacerbated when mothers are at work, as child-caregivers may fail to ensure proper nutrition for children, despite the availability of food at home.

## **2.3 Underlying causes of malnutrition**

### **2.3.1 Inadequate Care and Education for Children**

Geresomo, (2004) and Keats et al. (2021) highlighted that pregnant and nursing woman, along with children under five, are particularly vulnerable to malnutrition due to their higher nutritional needs for growth and fetal development. If the family diet is inadequate or food is unequally distributed, these groups are at greater risk of malnutrition. Gustafson, (2013) noted that maternal absence from home due to work can contribute to inadequate care. This can lead to insufficient maternal nutrition, resulting in low weight gain during pregnancy, higher maternal mortality, and low birth weight babies, who may face stunted growth (UN ACC/SCN, 2000). However, education also plays a vital role in nutrition. Parrish et al. (2010) emphasized that education helps individuals gain knowledge and skills that improve food production, marketing, processing, and preparation. Literate individuals are more likely to understand the importance of a balanced diet, while illiterate women may struggle to grasp the relationship between foods and their nutritional content, leading to poorer nutrition in the family. Education, therefore, enhances food security, nutritional care and nutrition within households.

### **2.3.1 Insufficient health services and unhealthy environment**

Health facilities and a healthy environment are crucial for

the household. Families may share food based on social

improving household health. Maintaining cleanliness can reduce infections like diarrhea (Mtimuni et al., 2010), and Geresomo (2004) noted that infection prevalence directly impacts nutritional status. Health services can control infections through immunizations and hygiene education. Without these, infections can lead to high morbidity and malnutrition. Vaida (2013) highlighted that mothers, often responsible for seeking care for sick children, may not always have the time or resources, especially when working.

### **2.3.2 Inadequate access to food**

Zulu, (2017) reported that factors like drought, excessive rain, and poor storage methods can lead to food shortages by damaging produce. In addition, Madjdian, (2018) noted that intrahousehold food allocation can make food inaccessible to some members, even when enough is available. Ogutu et al. (2022) highlighted that mothers, as primary caregivers, may not always ensure proper food provision for children. Poor roads and low wages further exacerbate food scarcity, especially for those reliant on purchasing food, contributing to inadequate nutrient intake and malnutrition.

## **2.4 Basic causes of malnutrition**

### **2.4.1 Resources and their control**

Access to production resources such as land and capital by households may help in improving food security and eventually nutritional status. Food security will be high in households where members are economically productive. However, food security depends on who controls the resources because research has shown that in households where women are in control, most of the income is used towards provision of food to household members (Sraboni et al., 2014).

### **2.4.2 Political and Ideological factors and potential resources**

Political will of the government may influence food security at national level (Grote, 2014). If the government is willing to support programs proposed by governmental and non- governmental organizations, then food security and nutritional status may be improved. Potential resources include man-power and capital goods. Hunt and Samman, (2016) noted that in Malawi, there has been an increase in women being involved in economic empowerment hence

more capacity in acquisition of resources to take care of children as reported. Food security and nutritional status of the communities may be improved if a country has well trained and adequate man-power

## **2.5 Maternal occupation and child morbidity**

Butt et al. (2020) noted that women are typically the primary caregivers in most societies, responsible for breastfeeding, food preparation, water and fuel collection, and seeking medical care, all of which are vital for a child's development. Mchome et al. (2020) found that children cared for by older caregivers were healthier than those with younger ones. Adedza (2009) reported that children of working mothers were more likely to be wasted than those of housewives, as working mothers often leave their children in the care of older siblings or relatives who may not provide optimal care, leading to reduced feeding frequency and negative impacts on nutrition and health.

## **2.6 Maternal occupation and nutrient intake of the children**

Crepinsek et al. (2004) examined the effect of maternal occupation on children's nutrition. Children of working mothers have been reported to have lower iron intakes than of nonworking mothers. It also indicated that under-five children of working mothers had taken significantly more energy than the requirements compared to those of housewives. Pierre- Louis et al (2007) reported that children of businesswomen were reported to be negatively associated with children's animal protein intake. Similarly, Vaida (2013) showed that 34% of preschoolers of working mothers were usually skipping meals, whereas only 12 % of preschoolers of non-working mothers skipped meals.

## **2.7 Maternal occupation and dietary diversity**

Dietary diversity refers to the number of different food groups consumed by an individual or household over a 24-hour period (Mekuria et al., 2017) and is linked to positive outcomes like improved child nutritional status and birth weight. A more diversified diet correlates with better energy and protein adequacy, high-quality protein especially from animal sources, and household income. Researchers have explored various factors influencing dietary diversity, including maternal occupation. Ruel et al. (2013) found that dietary diversity is strongly associated with nutrient adequacy and diet quality in developed

countries. In Malawi, poor dietary diversity is largely due to inadequate knowledge of food choices and suboptimal childcare practices (Katenga-Kaunda et al., 2022). However, studies in Oman (Alasfoor et al., 2007) and Nepal (Khanal et al., 2013) found no association between maternal occupation and dietary diversity.

## **2.8 Maternal occupation and feeding practices**

Maternal occupation influences child feeding practices, which affect children's health and future food preferences (Vaida, 2013). Furthermore, it is worth noting that working mothers often lack time to breastfeed or prepare nutritious meals, while housewives can breastfeed longer. Lawrence and Lawrence, (2021) found that urban professional women typically stop breastfeeding earlier than recommended. A study of Malaysian women found most working mothers stopped breastfeeding within three months. Amin et al. (2011) and Amosu et al. (2011) reported low exclusive breastfeeding rates, with only 52% practicing it. In Malawi, improvement in breastfeeding practices, with exclusive breastfeeding rates increasing from 53% in 2004 to 71% in 2010 (Kuchenbecker et al., 2015). However, the proportion of children under 6 months receiving complementary foods remained unchanged at 19%. World Health Organization, (2023) recommend exclusive breastfeeding for the first 6 months, followed by complementary foods until age 24 months.

## **2.9 Maternal occupation and food security**

The FAO defines food security as ensuring all people have access to sufficient, safe, and nutritious food that meets their dietary needs for a healthy life. FAO reported that formal income significantly reduces food insecurity, with formal employment lowering the likelihood of food insecurity (Adem et al.2018). On the other hand, Kornrich and Roberts (2018) found that women's earnings are more likely to be spent on family food than men. However, increased women's economic participation, boosting their ability to acquire resources for child care. Food security and nutrition can improve with well-trained, adequate manpower (Katenga-Kaunda et al., 2022). Ragasa et al., (2019) found that food security was higher in households where women were employed and controlled resources, as they tend to allocate more income for food.

## 2.10 Maternal occupation and child nutritional status

Tekeba et al. (2023) reported higher rates of underweight and stunting among children of working mothers compared to housewives. Similarly, Barker, (2006) and Bogere, (2017) observed greater stunting in children of working mothers, while Rahman et al. (2006) noted that children of businesswomen were healthier than those of professional employees. Conversely, Begum et al. (2021) found higher undernutrition rates among children of businesswomen than housewives. Mittal et al. (2007) indicated that maternal occupation affects child nutrition, reporting 46.15% underweight and 58.97% stunted among children of working mothers, compared to 37.8% underweight and 44.8% stunted among housewives' children. Adeladza (2009) similarly found higher wasting rates among children of working mothers, noting that in developing countries, working mothers often leave their children with caregivers who may provide suboptimal care. Alasfoor et al. (2007) also reported higher prevalence of underweight children among working mothers.

## 3. Methodology

### 3.1 Study area

The study was done in Mzimba district in the Northern Region of Malawi. It was conducted in 10 locations and covered all primary schools of Mzuzu City, one primary school in Ekwendeni, and 5 primary schools at Mzimba Boma.

### 3.2 Preparation for the study

A team of trained research assistants collected the data on children using pretested questionnaires, scales, and height/length boards. Standard cups and serving spoons were used to estimate quantities of foods consumed 24 hours before the interviews. Permission to carry out the study was granted by Mzuzu City Assembly through letters to the District Education Manager (DEM), Mzuzu Police Headquarters, and Mzuzu Market Supervisor. Participants gave informed verbal consent.

### 3.3 Study design

The study was a cross-sectional survey. It targeted three groups of women. Firstly, it targeted 100 full-time housewives that were full-time at home doing household chores and caring for their children. Secondly, it targeted

100 female full primary school teachers that had children 6-30 months old. These full primary school teachers were leaving their children at home till evening. These teachers were teaching senior classes and knocking off after 3.30 pm. Their homes were far away from their place of work (schools) such that they had no time to feed or breastfeed their children within working hours. Finally, it targeted businesswomen who were randomly selected from the ten randomly selected locations in Mzuzu City. These businesswomen were leaving their children at home till evening. They were selling food products ranging from dry ingredients to perishable and unperishable vegetables and fruits.

### 3.4 Sample selection and procedure

Eligible participants were mothers of child-bearing age (15-49 years of age), mothers with a child aged 6-30 months, business women and female primary school teachers who were leaving their children at home till evening, women with secondary education, those that had given consent to participate. From these mothers, all children aged 6-30 months were eligible for nutritional assessment and other data collection exercises. Mothers with children over 30 months, unwilling mothers, those leaving their children at nursery schools or daycare: business women/ teachers carrying their children to the business/school area respectively and mothers without secondary education were excluded.

### 3.5 Sampling procedure and sample size

Non-probability purposive sampling was employed to select participants for this study. The sample included all full primary school teachers, full-time housewives, and businesswomen who met the eligibility criteria. Primary school teachers were purposively sampled from all schools in Mzuzu municipality, while additional schools in Mzimba Boma and Ekwendeni were covered to ensure a sample of 100 children aged 6-30 months. Full-time housewives were purposively selected from ten locations in Mzuzu City namely: Zolozolo, Katawa, Mchengautuwa, Chiwanja, Chibavi, Katoto, Luwinda, Masasa, Kaning'ina, and Sollesbele, and businesswomen were sampled from the main market and Timber markets in Mzuzu. The sample size of 300 children was determined based on the prevalence of malnutrition in Mzimba District, reported as 48% in the MDHS 2010 (NSO and ICF MACRO, 2011). The recommended sample size for a nutrition survey, considering a 50% prevalence, was 426 (Barbosa et al., 2018), but the study settled on 300 children.

### **3.6 Data collection**

A household questionnaire was used to collect information on demography, socioeconomic situation, child morbidity, dietary practices, household food situation and child health. The questionnaire was administered through personal interviews in the respondents' homes. Anthropometric data were collected on the children using scales and height/length boards. Standard cups and serving spoons were used to estimate quantities of foods consumed 24 hours before the interviews.

### **3.7 Demographic and socio-economic data**

Data on household composition, household assets, household socio-economic characteristics, household food security, child feeding, and health status of children were collected using a structured questionnaire.

### **3.8 Dietary intake**

Food intake data were collected using a 24-hour dietary recall method administered to mothers and caretakers. Standardized questionnaires were used for this purpose. 30 children were randomly selected from three groups of women (10% of 100 women from each group), participated in the study. Respondents were asked to recall all the foods, snacks, and beverages consumed by the child in the 24 hours preceding the interview. Measuring cups and spoons were used to estimate food amounts based on recommendations (Amoutzopoulos et al., 2020). The collected data, including meal frequencies, types of food, and amounts consumed, were entered into Nutri-Survey software (2007) adapted for the Malawian context. Nutrient intake was compared to suggested dietary intake, and the percentage of the daily recommended allowance was manually calculated.

### **3.9 Dietary diversity**

In this study, children's dietary diversity data were collected using the dietary diversity tool. The respondents were asked to list by indicating "yes" or "no" if the child had eaten or not eaten the foods the previous day and night based on the 17 food groups (Module C of Appendix 1). The dietary diversity score was measured by totalling the number of defined food groups each child consumed over 24 hours. Food groups were (1) cereals/root tubers, (2) meat, poultry/fish, (3) fats and oils, (4) legumes/nuts, pulses, (5) dairy and eggs, (6) fruits and vegetables

giving a potential score of 1-6 as recommended by FAO (2006) for use in children. It was categorized using the score of low, medium and high. The score indicates that if one eats less or 3 food groups, she/he has eaten low dietary diversity (LDD), 4 and 5 food groups then it is medium (MDD) and greater than 6 food groups is high dietary diversification (HDD) according to FAO (2006) classification.

### **3.10 The household food security situation**

Household food security information was collected using the modified Household Food Insecurity Access Scale (HFIAS) comprising nine questions that were developed by FANTA and promoted by FAO (Chakona, & Shackleton, 2018). The scale consists of two types of related questions. The respondent is first asked (occurrence question) if at all the condition happened in the past four weeks and if the answer is yes, the respondent is then asked the frequency with which this occurred with the possible answers of "rarely" (once or twice), "sometimes" (three to ten times) or "often" (more than ten times) in the past 4 weeks. The household food security was measured using a Household Food Insecurity Access Prevalence indicator which is used to determine the prevalence of household food insecurity. The Indicator categories households into food secure, mild, moderately and severely insecure.

### **3.11 Anthropometric measurement**

Children's weight was measured using a 25kg Salter scale, calibrated to zero and hung at eye level for accurate readings. Weight was recorded to the nearest 0.1 kg after stabilization, with the child wearing light clothing and no shoes. One enumerator weighed the child while another took three readings, which were averaged. Measurements followed Gibson's (2005) procedures. For children under 24 months, recumbent length was measured on a flat surface, with the child's head against the fixed end and body parallel to the length board. For children over 24 months, height was measured on a vertical board, ensuring proper alignment of body parts. Exact age was obtained from respondents and verified with health passport cards. Age was calculated using the WHO Anthro Software, and Z-scores were compared to WHO standards for nutritional analysis.



### 3.12 Data analysis

The data on household composition, water and sanitation, household socio-economic characteristics, food security situation, infant/child feeding, and health status of children were analyzed using SPSS Version 20 (IBM, 2011). Frequencies and cross-tabulation were run to find out the frequencies of qualitative variables and their level of significance. Chi-square analysis was done to find out if there were any significant associations between attributes of interest of households and maternal occupation in the three groups of women. Chi-square was not valid where expected cell frequencies were less than five (<5). To meet this requirement, in some cases, the number of categories of variables to be tested was reduced. General Linear Model (GLM) analysis of variance (ANOVA) was used to find out if there were significant differences in quantitative variables among the children from the three groups of women. Post hoc tests were used to compare significant differences between children of the three groups. SAS 1999 software was used to compare significant differences in the prevalence of the type of malnutrition, food security, duration of child morbidity, and dietary diversity among children of teachers, housewives, and businesswomen. T-test was used to find out the effect of maternal occupation on the energy and nutrient intake of the children. All the results were compared at less or equal to a 5% level of significance.

## 4. Results and Discussion

### 4.1 Household demographic and socio-economic characteristics

In the current study, most of the demographic characteristics were similar among the three groups of households (Table 1). However, the mean number of under-five children of housewives was significantly higher than that of teachers and businesswomen ( $P < 0.01$ ) and teacher mothers were significantly older than businesswomen and housewives ( $P < 0.01$ ). The mean household size was five for the three groups and was similar to the national mean household size of five, with one child below the age of five years in each household (NSO and ICF Macro, 2011). The results indicated that 92.9% of teachers, 88% of housewives, and 78% of businesswomen were in a monogamous marriage and these percentages are above the findings of a baseline survey done in Ntchisi, where 73.2% were married monogamously (Mtimuni et al., 2010). Gersomo, (2004) and Ncube et al. (2020) reported that in polygamous households, households headed by widows or single parents, food security may negatively be affected and hence may lead to malnutrition in under-five children.

**Table 1: Socio-demographic characteristics of study participants and their households**

Parameter	Mothers occupation			$\chi^2$ /F- test	P-value
	Teachers (n=100)	Businesswomen (n=100)	Housewives (n=100)		
<b>Household composition (%)</b>					
<5yrs	23.00	28.70	26.80		
5-14 yrs	27.60	20.00	20.90	0.31	0.74
15-64yrs	49.90	51.30	52.40		
Age (years± SD) of Mother	34-84±6.03	30.88±4.99	32.22±5.86	11.89	0.01
<b>Sex of household head (%)</b>					
Female	5.00	5.00	13.90		
Male headed	95.00	95.00	86.10	0.36	0.70
<b>Level of education of the household member (%)</b>					
JCE	6.50	6.50	6.80		
MSCE	40.80	40.70	40.00	0.046	0.96
Tertiary	2.30	2.20	2.80		
Primary	50.40	50.60	50.40		
Mean household size (±SD)	5.59±2.75	4.77±1.62	5.18±3.62	4.64	0.17
No.of children under-five (±SD)	1.25±0.50	1.48±0.50	1.29±0.56	5.10	0.01
<b>Marital status of household respondents (%)</b>					
Married- monogamy	92.90	88.00	78.00		
Married- polygamy	2.10	7.00	8.10		
Widowed	4.00	1.00	5.20	0.02	
Separated	1.00	4.00	8.70		

## 4.2 Household assets

A higher proportion (92.0%) of teachers lived in a household that owned radios than those housewives (70.0%) and businesswomen (62.0%) (Table 2). Similarly, a greater proportion of teachers' households (70.6%) had television sets compared with those of housewives (47.0%) and businesswomen (43.4%). Households of teachers had significantly more assets than those of housewives and businesswomen resided ( $p < 0.01$ ). The difference in proportions of asset acquisition may be accrued to some assets being bought by the male household

heads, a factor that was not controlled in this survey. MDHS 2000 (NSO and ORC Macro, 2001; Wiradnyani et al., 2016; Tucker & Farrelly, 2016) findings on household assets indicated that household socio-economic status has specific benefits, for instance having a radio or a television exposes household members to innovative ideas including nutrition messages. Ownership of assets serves as a proxy for measuring the long-term standard of living (NSO and ORC Macro, 2001; Gertler et al., 2012). The findings of the current study imply that the teachers were more likely to expose to innovative ideas including nutrition messages to guide them on appropriate caring and feeding of their young children (Mtimuni *et. al.*, 2007; Jensen, 2013; Freeland-Graves et al., 2013).

**Table 2: Household assets by mothers' occupation**

Type of asset	Mothers' occupation			P-value
	Teachers %	Housewives %	Businesswomen %	
None*	1.0	4.0	5.1	
Radio	92.0	70.0	62.0	0.01
Furniture	94.1	76.0	69.6	
Nets	96.4	80.0	80.5	
TV	70.6	47.0	43.4	

\*Did not have any of the listed assets

### 4.3 The main source of food, current food situation, and food provider

The majority of households (73.7 % of housewives, 73.5% of businesswomen, and 48.5% of teachers) purchase food (Table 3). However, 51.5% of teachers reported that they also produce maize. Husbands were the main food providers, especially among housewives, and would contribute to observing the nutrition of children (89.6%). Teachers shared the responsibility of purchasing food with their husbands. The results also show that household food provider was significantly different among the three groups of women ( $p < 0.01$ ). Similarly, sources of food were also significantly associated with maternal occupation ( $p < 0.01$ ). The results show that over 75% of households are food secure although the majority of

housewives and businesswomen purchase food. A greater proportion (92.4%) of households categorized as food secure were teachers. This might be due to their production of maize, the income of teachers, and their husbands' income. The income of teachers might have also contributed to food security since studies have shown that maternal income is mostly used for providing food for household members (Nyovani and Madise, 2011; Cardoso et al., 2019) which may lead to balancing diets for children and improve their nutritional status. The results also show that households that were moderately food insecure were significantly different from each group of women. This implies that moderate food insecurity was significantly affected by the type of occupation ( $p = 0.03$ ). Households that were food insecure, moderately and severely food insecure were significantly different within the occupation ( $p < 0.01$ ).

**Table 3: Household main source of food, food situation, and main food provider by mother's occupation**

Parameter	Mothers occupation			P-value
	Teachers (n=100)	Housewives (n=100)	Businesswomen (n=100)	
<b>Source of food (%)</b>				
Own production	51.5	26.5	26.3	0.01
Purchase	48.5	73.5	73.7	
<b>Household main food provider (%)</b>				
Husband	17.7	89.6	67.3	
Wife	21.8	5.2	16.4	0.01
Both	61.5	5.2	16.3	
<b>Household food security situation (%)</b>				
Food secure	92.4	79.2	79.2	0.25
Moderately	5.9	18.4	18.6	0.03
Severely food insecure	1.7	2.4	2.2	0.25
P- value	0.01	0.01	0.01	

### 4.4 Child morbidity

The results show that 45%, 54% and 65% of children of teachers, housewives, and businesswomen, respectively

fell sick two weeks before the survey (Table 4). There is a significant association ( $p < 0.05$ ) between maternal occupation and children who fell sick two weeks before the survey. The results show a higher proportion of children of

businesswomen that had fallen sick two weeks before the survey compared with children of housewives and teachers. This might be because the proportion of businesswomen that had fewer radios (62%) and TV (43.4%) was less than

that of teachers and housewives (Table 4). This might have reduced their exposure to innovative messages including health and nutrition messages (Armstrong et al., 2009; NSO and ICF Macro, 2011).

**Table 4: Proportion of children who fell sick two weeks before the survey**

Occupation	Percent	P value
Teachers (N=100)	45	
Housewives (N=100)	54	0.05
Businesswomen (N=100)	65	

#### 4.5 Type of illnesses children had suffered from two weeks before the survey

The results show that 66.7% of the children of teachers and 75% of those housewives suffered from cough (Table 5). The results also show that a higher percentage (50%) of businesswomen's children suffered from Malaria than those of teachers (16.7%). In addition, the results have shown that only children of housewives suffered from diarrhoea. These findings are higher than the national figure of 18% reported in MDHS 2010 (NSO and ICF Macro, 2011) and 13.3% reported for Ntchisi (Mtimuni *et*

*al.*, 2010) who had suffered from diarrhoea. This may be because the survey was done during the rainy season (November to December) when there is wet weather which makes the conditions more susceptible to diarrheal diseases one of which being diarrhoea. The other reason might be because housewives were not daily exposed to health knowledge even if they owned some assets like radios and TVs as opposed to teachers who might also be teaching Health Education in classes refreshing the knowledge they had acquired at school. The results have also shown a higher proportion (75%) of children of housewives suffering from cough than those of teachers (66.6%) and businesswomen (25.0%) and there is a significant association between cough prevalence and maternal occupation ( $p < 0.05$ ).

**Table 5: Type of illnesses children had suffered from two weeks before the survey by mother's occupation**

Type of illness	Mothers' Occupation			P-value
	Teachers	Housewives	Businesswomen	
Cough	66.6	75.0	25.0	0.05
Malaria	16.7	0.0	50.0a	
Fever	16.7	0.0	25.0a	
Diarrhoea	0.0	25.0	0.0a	

#### 4.6 Duration of illness of young children before the study

Presented in Table 6 are the proportions of young children that had been ill 2 weeks before the survey by the duration of the illnesses. The results show a higher proportion (44.4%) of housewives had children that had suffered the longest period ranging from 6 to 10 days than children of businesswomen (33.7%) and those teachers (24.4%) but not significantly different. This might be because health and nutrition knowledge acquired at school by housewives might have been forgotten since they are just staying at

home, unlike teachers who teach Health Education at school. The children that suffered from 1 to 2 days were significantly different from each group of women ( $p = 0.04$ ). The results also show that the duration of illnesses was significantly different within teacher occupation ( $p = 0.03$ ) and housewife occupation ( $p < 0.01$ ). This implies that the nutritional status of the children would negatively be affected since malaria, diarrhoea, cough, and fever often lead to reduced dietary intake due to suppressed appetite and impaired digestion and absorption (Gersomo, 2004, NSO and ICF MACRO 2011 and Mtimuni *et al.*, 2010; Adepoju & Allen, 2019). As such illnesses are associated with weight reduction.

**Table 6: Duration of illnesses of children by mother's occupation**

Duration	Mothers' occupation			P=value
	Teachers (%) (n=100)	Housewives (%) (n=100)	Businesswomen (%) (n=100)	
1-2 days	22.3	5.6	18.9	0.04
3-5 days	42.2	24.1	31.7	0.44
6-10 days	24.4	44.4	33.7	0.09
>10 days	11.1	25.9	17.7	0.12
P values	0.03	0.01	0.32	

#### 4.7 Consumption of 6 food groups

The International 12 food groups standards guide (Coates, 2006; Springmann et al., 2020) was collapsed into 6 food groups to meet the Malawian food guide (Barcus et al. 2021). Presented in Table 4.9 are the proportions of children who had eaten different foods from the 6 food groups. The results show that more children of teachers (88.1%) ate staples than children of businesswomen (84.8%) and housewives (81.0%). The results also show that a greater proportion (81.2%) of children of teachers had eaten meat than those of businesswomen (68.7%) and

housewives (68.0%). Less than 50% (45.0% of teachers, 32.0%, and 31.2%) of children from all three groups of women ate legumes of all types (Table 7). More children of teachers (64.4%) had eaten fruits than those of businesswomen (55.6%) and teachers (54.0%). The results also show that a higher proportion (63%) of children of businesswomen had taken beverages compared to children of housewives (55%) and teachers (34%). This might be because businesswomen were exposed to the market every day where beverages are being sold. Maternal occupation and beverage intake are significantly associated ( $p=0.02$ ).

**Table 7: Proportion of children who consumed foods from 12 food groups by mothers' occupation**

Food Group	Mothers' occupation			P value
	Teachers (n=100)	Housewives (n=100)	Businesswoma (n=100)	
Cereals	88.1	80.2	81.8	0.30
Vegetables	83.2	66.3	64.6	0.01
White tuber and roots	21.8	26.7	28.3	0.34
Fruits	64.4	53.5	55.6	0.28
Meat	81.2	67.3	68.7	0.14
Eggs	30.7	24.8	27.3	0.63
Fish	46.5	38.6	29.3	0.04
Legume nuts and seed	45.5	31.7	31.3	0.05
Milk & milk production	54.5	34.7	47.5	0.02
Oils and fats	82.2	64.4	67.7	0.01
Sweet/sugar	85.1	78.2	80.0	0.34
Beverage	34.00	55.00	63.0	0.02

## 4.8 Nutritional status of young children

The results in Table 8 of mean anthropometric indices of the three groups of women were similar. However, there were significant differences in mean weight-for-age z scores for children of businesswomen from the rest of the two groups at ( $p=0.02$ ). The children of businesswomen were significantly lighter ( $0.04\pm 1.17$ ) than those of teachers ( $0.3\pm 0.93$ ) and housewives ( $0.51\pm 1.12$ ). This may be because children of businesswomen had reported lower mean energy intake of  $298.73\pm 93.89$  kcal (23% of RDA) and yet energy is for growth (Gibson, 2005). The results also show that children of businesswomen ( $-0.87\pm 1.65$ ) were significantly shorter than those of housewives ( $-0.55\pm 1.1$ ) and teachers ( $-0.9\pm 1.1$ ) at  $p=0.03$ . Similarly, this may be due

to low energy and nutrient intake as they met only 23% energy of RDA and 18% fat of RDA which might be done for a long time. All these nutrients were below recommended dietary allowance. In addition, another contributing factor may be that businesswomen and housewives were less (75%) food secure than teachers (92.4%) as shown in Table 4.4. In addition, 20% of children from businesswomen were reported to have suffered from Malaria (Table 8) which might have reduced their appetite, digestion, and absorption of nutrients which could have led to reduced weight. These findings agree with those reported by Tucker and Sanjur (2002), Olatidoye *et al.* (2011) and Berhane *et al.* (2018) who reported that though working mothers bring income into the home, they may not have time for preparing and feeding their children. Therefore, feeding and caring messages must target caretakers.

**Table 8: Anthropometric characteristics of children 6-30 months by mothers' occupation**

Characteristics Value	Maternal Occupation			$\chi^2$ F-value	/p- Value
	Teachers (n=100)	Housewife (n=100)	Businesswomen (n=100)		
Males (%)	54	50	55	0.55	0.75
Females (%)	46	50	45		
Mean Height (cm $\pm$ SD)	71.6 $\pm$ 7.7	73.8 $\pm$ 8.5	72.1 $\pm$ 8.5	2.030	0.13
Mean Weight (Kg $\pm$ SD)	9.6 $\pm$ 2.0	10.2 $\pm$ 2.4	9.2 $\pm$ 2.2	4.857	0.08
Mean HAZ ( $\pm$ SD)	-0.90 $\pm$ 1.1	-0.55 $\pm$ 1.31	-0.87 $\pm$ 1.65	1.99	0.02
Mean WAZ ( $\pm$ SD)	0.31 $\pm$ 0.93	0.51 $\pm$ 1.12	0.04 $\pm$ 1.17	6.489	0.02
Mean WHZ ( $\pm$ SD)	1.20 $\pm$ 1.40	1.10 $\pm$ 1.70	0.50 $\pm$ 1.30	6.698	0.38

## 4.9 Mean energy and nutrient intake of children

### 4.9.1 Energy intake

Presented in Table 9 are the results of daily mean energy and nutrient intake and standard deviation of young children among teachers, full-time housewives and businesswomen. Results show that on energy intake show that children of housewives took significantly higher ( $p<0.01$ ) energy than those of teachers and businesswomen though it was lower than recommended dietary allowance (Table 9). This might be because caretakers in teachers and businesswomen were feeding children whereas housewives were feeding the children themselves. The other reason might be due to the fact a higher proportion of housewives (87.5%) had fed their children with 3 snacks. The post hoc test showed that the mean energy intake of children of housewives' was significantly higher than that of teachers ( $p<0.01$ ) and also of businesswomen ( $P<0.01$ ). These results are consistent with the findings of Vaida

(2013) who reported that the average calorie intake in young children of housewives was higher than those of working mothers. However, these findings contradict with results reported by Gepinsek and Burstein (2000) where children of working mothers had taken in more energy than those of non-working mothers. Energy intake difference in this study might be because housewives feed their young children themselves and had given them more snacks. (Table 9) then teachers and businesswomen and were able to monitor them, unlike teachers and businesswomen. Therefore, in cases like these, possible interventions could be food supplements which are usually fortified blended flours.

### 4.9.2 Protein and fat intake

The results in Table 9 show that mean protein intake was higher in young children of housewives ( $18.90\pm 7.42$ g) and of businesswomen ( $17.06\pm 6.91$ g) than those of teachers ( $14.78\pm 5.11$ g). The main sources of proteins reported by respondents were meat, milk and milk products and eggs. It was reported that 81.2% of teachers, 67.3% of

housewives and 68.7% of businesswomen feed their children with meat (Table 9). Finally, 54.5% of teachers, 34.7% of housewives and 47.5% of businesswomen feed their children with milk (Table 9). This shows that access to animal sources of proteins was not easy as protein sources like meat in Malawi are expensive (Mtimuni *et al.*, 2010).

Children of housewives had a greater mean intake of fats ( $22.57 \pm 49.54$ g) than children of teachers ( $13.86 \pm 12.13$ g) and businesswomen ( $12.12 \pm 9.41$ g). This means that housewives fed their children with higher amounts of fat than those of businesswomen and teachers. These findings contradicted those of Christiansen and Alderman (2001) who found that children of working mothers consumed more fatty foods than those of nonworking mothers because they had no time to cook foods with other methods of cooking and also they had resources (cooking oil) to fry the foods. The reduction may be because young children of teachers and businesswomen are left in the care of other family members who may not have fed the children properly due to a lack of nutritional information (NSO and UNICEF, 2006).

### 4.9.3 Calcium and Iron Intake

The results show that young children of teachers had a higher intake of calcium ( $115.98 \pm 90.80$ g) than those of housewives ( $105.99 \pm 68.59$ g) and businesswomen ( $95.25 \pm 71.49$ g). This may be because a greater proportion (54.5%) of children of teachers reported having taken milk than of businesswomen (47.5%) and housewives (34.7%) as reported in Table 9. Iron intake was higher in the young children of housewives ( $4.85 \pm 2.31$ g) than those of businesswomen ( $4.21 \pm 1.73$ g) and teachers ( $3.60 \pm 0.82$ g).

### 4.9.4 Vitamins

The results in Table 9 show that there were hardly any differences in mean Riboflavin intake in young children of the three groups of women. They also show that Vitamin C intake was higher ( $27.37 \pm 22.27$ mg) in young children of businesswomen than of teachers ( $21.49 \pm 19.04$ mg) and

housewives ( $15.21 \pm 2.40$ mg). These results are inconsistent with the respondents' reports that a greater proportion (64.4%) of teachers had fed their children with fruits than of businesswomen (55.6%) and housewives (53.5%) in Table 9. The businesswomen also reported that they buy most of the foods; they might have been more exposed to citrus fruits at the markets (Table 9). The results also showed a higher intake of retinol in children from businesswomen ( $4.54 \pm 10.81$ µg) than (1.05 ± 2.42µg) of teachers and housewives ( $0.35 \pm 0.62$ µg). This may be attributed to the fact that (70%) of children of businesswomen, (87.5%) of housewives and (40%) of teachers fed their children with 3 types of snacks and some of the snacks were mangoes which are sources of vitamin A. Riboflavin intake of the children of businesswomen were higher ( $0.50 \pm 0.30$ mg) than those of teachers ( $0.37 \pm 0.13$  mg). Likewise, intake of niacin was higher among housewives ( $5.47 \pm 3.68$ mg) than those of teachers' ( $4.00 \pm 1.63$ mg) and businesswomen's children ( $4.67 \pm 2.63$ mg). This shows a higher niacin intake in children of housewives than those of the two groups. Intake of vitamin C in teachers' children and businesswomen's children may be because the proportion of children taking other fruits in teachers was higher (64.4%) than that of businesswomen (55.6%) and housewives (54%) (Table 9).

This again may imply that teachers might also have been more exposed to nutritional messages as opposed to housewives and businesswomen because they own more assets such as radios and televisions (Table 2). MDHS 2010 (NSO and ICF MACRO, 2011), reported that assets such as televisions and radios expose one to new information including nutritional messages. Higher intake of vitamin C in children of businesswomen may be due to their mothers spending more time at the market where they could easily access most citrus fruits being sold. Analysis of variance showed that the nutrient intake of children among groups of children was insignificantly different. This implies that the mean intake of proteins, fats; calcium, iron, retinol, thiamine, riboflavin, niacin and vitamin C were not significantly affected by the type of maternal

**Table 9: Daily mean energy and nutrient intake of children 6-30months by mothers'**

Nutrient	Mothers' Occupation			P-value
	Teachers (n=10) Mean SD	Housewives (n=10) Mean SD	Businesswomen (n=10) Mean SD	
Energy (kcal)	356.58±75.4 <sup>b</sup>	453.56±129.89 <sup>a</sup>	298.73±93.89 <sup>b</sup>	0.01
Protein (g)	14.86±5.11	18.90±7.42	17.06±6.91	0.39
Fats (g)	13.86±12.13	22.57±9.54	12.12±9.42	0.44
Calcium (g)	115.98±90.80	105.99±68.59	95.25±71.49	0.84
Iron (mg)	3.60±0.82	4.85±2.31	4.21±1.73	0.29
Retinol (µg)	1.05±0.42	0.35±0.26	4.51±0.81	0.31
Thiamin (mg)	0.47±0.17	0.64±0.31	0.42±0.23	0.11
Riboflavin (mg)	0.37±0.13	0.36±0.30	0.50±0.30	0.14
Niacin (mg)	4.00±1.63	5.47±3.68	4.67±2.63	0.43
Vitamin C(mg)	21.49±19.0	15.71±12.40	27.37±22.20	0.50

## 4.10 Prevalence of malnutrition in young children

### 4.10.1 Stunting

The results in Table 10 show a higher (23% moderately and 14% severely adding to 37%) proportion of children that were stunted in businesswomen than in teachers ( 27% moderate and 5% severe stunting adding up to 32%) and housewives (28%). The prevalence of chronic malnutrition in children of businesswomen and of teachers is high according to the classification of WHO which classifies 30% as high prevalence. The proportion of stunting is less than the national figure of 47% stunted as reported in MDHS 2010 (NSO and ICF Macro, 2011). The results show a significant effect of maternal occupation on stunting ( $p=0.04$ ). Stunting is a chronic malnutrition problem that develops over a long period (Gibson, 2005) and this implies that the children were underfed over a long period. This may be due to low energy (22.98%) intake (Table 9). A greater proportion (50%) of businesswomen children were reported to have suffered from Malaria than (16.7%) of teachers and of housewives (0%) (Table 5) which could have reduced appetite leading to reduced dietary intake and impaired digestion and absorption process and yet increase body demand for nutrients (Mtimuni *et al.*, 2010). This is especially if illnesses were frequent. It has been reported that children can become malnourished from 3 months or even from birth, peaking at 18 months (NSO and UNICEF, 2007). The findings of NSO and UNICEF (2007) also showed that the prevalence of the three indicators is lowest among infants under 6 months of age but highest in the 12-23 months age group. The extent of underweight and stunting is lowest for children of less than 6 months of age (29%) and increases exponentially from 6 months (59%) and reduces the peak at

the age of 12-23 months. This implies that most nutrition programs have to target under-five children from six months contrary to targeting children over two years when damage has already been done. Furthermore, the results also showed a significantly higher proportion of business women's children were stunted than those of the other categories. Similar results were observed by Owor *et al.* (2000), Akombi *et al.*, (2017) and World Health Organization, (2018) who found severe stunting of children of mothers who were leaving their children at home. However, the results contradict those of who found that children of businesswomen were healthier than those of housewives.

### 4.10.2 Underweight

A higher (15%) proportion of children in housewives were overweight than those of businesswomen (12.2%) and teachers (7.0%). This may be attributed to the fact that children of housewives were reported to have taken in more energy (453.56±129.45kcal) than those of teachers (356.58±129.45kcal) and businesswomen (298.73±93.89kcal) though it was below the RDA for that day. Similarly, children of housewives had taken in more fat (22.57±9.54) than those of teachers (13.86±5.11) and businesswomen (12.12±9.42). The more intakes of fats and energy might be for a long time rather than at the time of the survey only. The proportion (15%) of overweight children of housewives and 12% of businesswomen is higher than the national figure of 8% as reported by MDHS 2010 (NSO and ORC Macro, 2011). There is a need to emphasize to the community of Mzimba urban areas, the effects of overweight malnutrition.

### 4.10.3 Wasting and overweight

The study has shown a higher proportion (4.0 %) of waste in



the children of businesswomen than those of housewives (3.0%) and teachers (1.0%). The proportion of children of businesswomen is higher than the national figure of 2 % wasting of children in urban areas of Malawi as reported by MDHS 2010 (NSO and ORC Macro, 2011). The results have also shown that children of teachers (32%) are more overweight than children of housewives (31%) and businesswomen (14%). The proportion of overweight children in the three groups of women is more than (8%) of the findings of MDHS 2010 (NSO and ORC Macro, 2011). In this survey, children of businesswomen are more undernourished than those of primary teachers. These results contradicted the findings of Rahman et al. (2006) that

children of businesswomen had the probability of being healthier than those of professional employees. However, the results are consistent with the findings of Ruwali (2011), Donatus et al., (2017) and Atukwatse, (2018) who reported that children of businesswomen were more undernourished than those of housewives. This implies that more nutrition messages on complementary and caring practices have to be disseminated to the community of urban areas of Mzimba District especially targeting all members of households to reduce cases of stunting, overweight, and wasting. It has to be emphasized that being overweight is also a type of malnutrition and must be addressed.

**Table 8: Prevalence of malnutrition in children 6-30 months by mother's occupation**

Women Nutritional status	Maternal Occupation			
	Teachers (n=100)	Housewives (n=100)	Business (n=100)	P-value
<b>Height-for-age (%)</b>				
Normal (-2+2 Z scores)	67.0	65.0	59.0	0.74
Tall(>+2Z scores)	1.0	7.0	4.0	0.02
Moderate Stunting(<-2 to -3Z scores)	27.0	28.0	23.0	0.04a
Severely stunting (<-3 Z scores)	5.0	0.0	14	
Overall stunting (<-2 Z scores)	32	28	37	
<b>Weight for Age (%)</b>				
Normal (-2<+2 Z scores)	91	81.0	77.7	0.78
Overweight (>+2 Z scores)	7.0	15.0	12.2	0.23
Moderately underweight (<-2 to -3 Z scores)	2.0	4.0	7.1	a
Severely underweight (<-3 Z scores)	0.0	0.0	3.0	a
Overall underweight(<-2 Z scores)	2.0	4.0	10.0	
<b>Weight for height (%)</b>				
Normal (-2z<+2 Z scores)	67.0	66.0	82.0	0.97
Overweight (>+2 Z scores)	32.0	31.0	14.0	0.45
Moderately wasting (<-2 to -3Zscores)	1.0	3.0	1.0	0.56
Severely wasting(<-3 Z scores)	0.0	0.0	0.0	a a
Overall wasting (<-2 Z scores)	0.0	0.0	3.0	

a  $\chi^2$  is not valid because of cell count less than 5

## 5. Conclusion and recommendations

### 5.1 Conclusions

The study was conducted to find out the effect of maternal occupation on feeding practices and the nutritional status of 6-30 months old children borne by full-time housewives, teachers, and businesswomen. The prevalence of malnutrition was assessed. In general, maternal occupation has been shown to affect the nutritional status of children. The study findings revealed significant differences in dietary patterns and growth outcomes among children based on their mothers' occupations. Children of

housewives exhibited significantly higher energy intake compared to children of teachers and businesswomen ( $p<0.01$ ). Furthermore, children of teachers had significantly higher consumption of legumes and vegetables ( $p<0.05$ ) compared to children of housewives and businesswomen. In terms of height, children of businesswomen were significantly shorter ( $p=0.03$ ) than children of teachers and housewives. Moreover, the results indicated a higher prevalence of chronic malnutrition, with 37% of children of businesswomen experiencing stunting, compared to 32% of children of teachers and 28% of children of housewives. The study concludes that maternal occupation plays a significant role in the occurrence of stunting ( $p=0.04$ ), highlighting the importance of

considering occupation-related factors in addressing child malnutrition.

## 5.2 Recommendations

The study's recommendations focus on key strategies to improve child nutrition and advocate for further research. Firstly, it is suggested that frontline workers utilize every opportunity to emphasize the importance of meal frequency among children. They should educate mothers/caregivers about the need for frequent meals to ensure adequate energy and nutrient intake. Additionally, the study recommends that the Department of Nutrition advocate for the establishment of care centers in workplaces. These centers would allow mothers to take short breaks for breastfeeding and supervise feeding practices for their children. Lastly, the study highlights the importance of conducting further research in other major urban areas of Malawi to validate the findings. It emphasizes the need for systematic addressing of the lessons learned from the current study in future research endeavors. These recommendations aim to improve child nutrition and promote the well-being of children in Malawi.

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