Journal of Agribusiness and Rural Development

DETERMINANTS OF FOOD SECURITY AMONG RURAL HOUSEHOLDS OF THE MOPANI DISTRICT MUNICIPALITY, LIMPOPO PROVINCE OF SOUTH AFRICA

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Abstract. Regardless of the several measures implemented by the South African government to curb food insecurity, the majority of rural households are still experiencing food insecurity at a provincial level, particularly in Limpopo Province. This could be because of the high unemployment rate that is becoming worse in the province. Even though many members of rural households have obtained tertiary education, most individuals still find it difficult to secure jobs. This results in many rural households depending on social grants to make a living, and it is acknowledged that these social grants are not enough to provide for a household's food needs. This study was conducted in the Mopani district municipality. A multistage sampling procedure was used, and villages were selected based on probability proportionate to size, making a total of 173 rural households. The objectives of the study were to profile the socio-economic characteristics of rural households, to identify the food security status of these households, and to determine the factors that influence food security among them. To analyse the data, the Household Food Insecurity Access Scale, descriptive statistics and the multinomial logistic regression model were used. From the findings of the study, the results revealed that the majority of rural households in the Mopani district municipality were found to be moderately to severely food insecure as per logistic regression estimates.

Keywords: household food insecurity access scale, multinomial logistic regression model, rural households

INTRODUCTION

The FAO (2009) noted that food security exists 'when all people, at all times, have physical, social, and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life'. Food security consists of four pillars, which are also considered to be factors affecting food security either in a positive or negative way. These pillars include the availability of food, the accessibility of food, the utilization of food and the stability of food supplies (DAFF, 2013).

According to De Cock et al. (2013) and D' Haese et al. (2013), South Africa experiences food insecurity at a household level, particularly in rural areas. Matebeni (2018) noted that food security is still a big concern among many people in the country and that this situation is associated with the high poverty levels that exist in South Africa. The findings from previous literature concerning household food security show that experience-based food insecurity levels are still high, regardless of assistance from the government which is aimed at curbing food insecurity (Matebeni, 2018). For instance, the FAO (2010) noted that there were 264 million hungry people in Sub-Saharan Africa, showing that hunger remains at a solemn level. To be precise, it was recorded

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that in South Africa, 35.7% of the population lived below a poverty level of greater than $2 a day, which is equivalent to R30.28 a day (World Bank, 2011).

Ncube and Kang'ethe (2015) state that white people are a minority group in South Africa, but they still dominate as commercial farmers and have full control in the production system, with skyrocketing prices that favor whites as producers. This, however, leaves South Africans vulnerable to food insecurity because the black majority are subjected to white people's food production calendar and lack purchasing power and the ability to compete in the open market. With the above-mentioned situation, the democratic government has provided programmes such as the National School Nutrition Programme (NSNP), pension funds for the elderly, child support grants and employment opportunities through water and community public works programmes to improve food security conditions, particularly among the disadvantaged (Sekhampu, 2013).

However, the issues of household food and nutrition security have received increasing worldwide attention recently due to the impact of climate change and tough economic conditions putting new and additional stresses on food systems (SSA, 2019). A report by the WHO (2018) cautioned that the world is not on track to eradicate hunger by 2030 as envisioned in the Sustainable Development Goals (SDG). The report further indicates that approximately 821 million people in the world were undernourished in 2017 (WHO, 2018). Furthermore, the Global Hunger Index (GHI) revealed that 52 out of 119 countries had GHI scores which were rated as having either serious, alarming or extremely alarming hunger, a statistic observed in 2017 (IFPRI, 2017). Eventually, a greater number of countries, including South Africa, are now recognizing the need to expand the measurement of food and nutrition security and the importance of informing and planning, as well as monitoring progress, in the achievement of 2030 targets (SSA, 2019).

Zhou et al. (2019) noted that food security has many dimensions, and such dimensions ranged from global, regional, national, local and household to individual levels. The determinants of food security differ across all these levels. This is because food security is a multidimensional phenomenon encompassing climate change, civil conflicts, natural disasters and social norms (Zhou et al., 2019). In addition, there are various factors responsible for food security. These include supply side factors, demand side factors and market related factors, to mention a few. For instance, at the national level, food insecurity may be analysed in terms of production, supply and demand deficits. On the other hand, the socio-economic characteristics of households are crucial in determining household food security. A study conducted by Zhou et al. (2019) aimed to examine the factors influencing household food security in rural areas of Pakistan, and the results of the study revealed that age, gender, education, remittances, unemployment, inflation, assets and disease are the important factors that determine food insecurity. This was because the Household Food Insecurity Access Scale is able to better estimate food security status because it focuses on the food availability, accessibility and utilisation of households. Ngema et al. (2018) and Zhou et al. (2019) conducted similar studies, although Ngema et al. (2018) used a different method to estimate the factors influencing food security status. Ngema et al. (2018) aimed to estimate the determinants of household food security status in Kwazulu-Natal [KZN]. Food security status was estimated using HDDS together with the Household Food Consumption Score [HFCS]. Thereafter, a Binary Logistic Regression Model was used to determine the factors influencing household food security. Regression estimates established that education, receiving infrastructural support and participation in the 'One home, one garden' programme positively influenced a household's food security status. These results align with the current situation happening in the Mopani district municipality.

According to Altman et al. (2009), South Africa is said to be food secure at a national level, although numerous households within the country are categorised as food insecure. The FAO (2020) reports that climate shocks and economic slowdowns and downturns are the main drivers that have led to the prevalence of food insecurity in South African households. The Southern African Development Community Report (SADC, 2019) also reports that the current food and nutrition insecurity in South Africa was caused by adverse weather-related shocks, particularly the extreme flooding which occurred in previous seasons combined with other rapid onset livelihood disturbances. As a result, about 20% of South African households are estimated to have inadequate or severely inadequate access to food (SSA, 2014). Also, Alemu (2015) noted that 64% of South African households are food insecure. These results were

also supported by statistics from South Africa's report in 2019 indicating that 6.5 million people, which is 11% of the population, are suffering from hunger. This reveals that most households and individuals in South Africa are highly susceptible to food insecurity shocks. In Limpopo Province, for example, approximately 78% of rural households are categorised as food insecure (Alemu, 2015).

Chopra et al. (2009) mentioned that there is a strong relationship between food insecurity and household socio-economic status. These socio-economic traits include income, employment status and food expenditure. Therefore, a total household income becomes significant in achieving food security (Shisanya and Hendriks, 2011; Hendriks, 2014), and given the high poverty level, it is difficult for most South African households to purchase enough food to feed the entire household (SSA, 2018).

A report provided by Mail and Guardian (July 2020) declares that food security is a national crisis in South Africa. To be precise, the South African National Health and Nutrition Examination Survey [SANHNES] discovered that in urban areas, 28% of households were at risk of hunger, while 26% were already experiencing hunger. In rural communities, these statistics hit 32% and 36%, respectively. The SANHNES further argues that food security is more than just putting meals on the table, and also entails a variety of factors that include malnutrition, obesity, hunger seasons and low dietary diversity (Mail and Guardian, July 2020).

Andy du Plessis, managing director of Food Forward South Africa [FFSA], told Mail and Guardian in July 2020 that poverty and unemployment are two leading factors that trigger food insecurity and that these factors remain complex to unpack and understand. This is exacerbated by housing issues, quality of education and social problems that are not being addressed, which further proliferate food insecure households and individuals. Currently, it is estimated that about 50% of the South African population is food insecure or at a risk of food insecurity (FFSA, 2020). This implies that people are hungry or at risk of hunger, skipping meals or going for days without food to survive (FFSA, 2020). Statistics South Africa (SSA, 2019) established that people who are vulnerable to food insecurity live in poverty-stricken households that lack money to buy food and are unable to produce their own food. Such households are inhibited by the inability to secure employment or to generate income, thus translating into poor households which are typically characterised by few income-earners and many dependents and are particularly vulnerable to economic shocks (SSA, 2019).

Due to the outbreak of the COVID-19 pandemic, President Cyril Ramaphosa declared a National State of Disaster with countermeasures on 15 March 2020. This was followed by a national lockdown (people having to stay at home) order issued on 23 March 2020, which was to be effective for three weeks from 27 March 2020. The lockdown was ordered in an attempt to buy time to develop and implement a long-term response to the COVID-19 pandemic. The initial three weeks were extended to five weeks, scheduled to end on 03 April 2020. This left several households and individuals struggling to earn an income to feed their families. This was because the lockdown came with robust restrictions that prevented individuals from leaving their homes, except under exceptional circumstances. Consequently, people were not allowed to go to work unless employed in an essential sector and were restricted in how and where they could spend their income. Closing non-essential industries led to declines in production and large numbers of workers being laid off. Arndt et al. (2020) states that during the lockdown period, households with low levels of educational achievement and high dependence on labour income experienced and continue to experience a massive real income shock that is clearly threatening the food security of these households. This effect is mainly the result of the lockdown policies imposed by South Africa to contain the novel Coronavirus in the country, leaving a vast number of households and individuals at a greater risk of food insecurity.

To combat the aforementioned challenges, the South African government has put several measures in place. For instance, the Cabinet formulated a national food security strategy to integrate diverse food security programmes, some of which were introduced to curb food insecurity and reduce the gap between the rich and the poor, including school feeding schemes, child support grants, free health services, pension funds for the elderly and provincial community garden initiatives, land reform and farmer settlement, production loans for farmers, grants for farmers and the presidential tractor mechanisation scheme. This study, therefore, looks at the factors influencing food security among rural households of the Mopani district municipality, Limpopo province, South Africa.

OBJECTIVES OF THE STUDY

The objectives of the study are to:

    i.   Profile the socio-economic characteristics of rural households in the Mopani district.

    ii.   Identify the food security status of rural households in the Mopani district.

    iii.   Determine the factors that influence food security among rural households in the Mopani district.

METHODOLOGY

Study area

The study was conducted in Limpopo province. The province has five district municipalities, namely Mopani, Sekhukhune, Vhembe, Waterberg and Capricorn. These five district municipalities are divided into twenty-two local municipalities (Statistics South Africa, 2019). The study was conducted in the Mopani district municipality. The main reason for the selection of this district was that food insecurity is evident in this district of Limpopo province when comparing to other districts within the province in terms of food security. The Mopani district municipality is located within the north-eastern quadrant of the province, and it is approximately 70km and 50km from Polokwane, which is the main city of Limpopo province. The district is located between the longitudes of 29°52'E to 31°52'E and latitudes of 23°0'S to 24°38'S as the central meridian and covers the geographical area of 20,022 km² (MDM IDP, 2018). The Mopani district municipality consists of five local municipalities, which are Ba-Phalaborwa, Greater Giyani, Greater Letaba, Greater Tzaneen and Maruleng. The Mopani district has a population of 1.093 million, and 274,126 rural households (SSA, 2016). The district municipality's area is shared amongst the five local district municipalities with Ba-Phalaborwa occupying most of it with an area of about 7,462 km², followed by Greater Giyani with an area of 4,172 km². Maruleng covers ±3,244 km², Greater Tzaneen covers ±3,243 and lastly Greater Letaba covers approximately 1,891 km² (Mathebula, 2016).

Data collection

A questionnaire was used as an instrument to collect data from rural households in the Mopani district through a face-to-face interview. The questionnaire used participant codes to label data instead of using names, identification numbers, cell phone numbers etc. In this way, privacy and confidentiality was ensured. The unit of analysis of the study was the heads of rural household residing in the Mopani District Municipality (MDM). All local municipalities in the district were considered for the purposes of the study, thus making a total of five local municipalities from Mopani district. The study therefore used a multi-stage sampling procedure and proportional random sampling as its sampling procedures to select the rural households in the Mopani district municipality. The first stage of the multi-stage sampling procedure was to divide Limpopo province into its five district municipalities. From the five district municipalities, only one district municipality was selected for the purposes of the study. The Mopani district was chosen since De Cock et al. (2013) reported that Mopani is the municipality most affected by food insecurity shocks within Limpopo province. The second stage divided the district into its local municipalities, thus making up a total of five local municipalities for this study. The third stage divided the local municipalities into their ward areas to ensure that wards were selected which are classified as rural areas. After this stage, a proportional random sampling was adopted until the household level. The fourth stage was the selection of villages from the five local municipalities based on the ward areas where households (respondents) were selected based on probability proportionate to size. This gave a total of 173 households in the district municipality.

The primary data was collected from July 2020 to September 2020 and the data was analysed in the same year.

Data analysis

To profile the socio-economic characteristics and identify the food security status of the rural households of MDM, a descriptive analysis from Statistical Package for the Social Sciences (SPSS) 27 was used. To analyse food security status, two methods were used. These methods included the Household Food Insecurity Access Scale [HFIAS] and the multinomial logistic regression model (MLRM). The HFIAS was used as a tool to measure food security status, and MLRM was used to examine the determinants of food security.

The MLRM was carried out to estimate the determinants of food security among the rural households of the Mopani district. MLRM is performed by analysing multiple dependent variables. The model was selected due to its ability to allow researchers to analyse data when

Table 1. Variables specified in the multinomial logistic regression model and their expected signs

Variables	Description	Unit of measurement
Dependent variable Y 0 = food secure; 1 = moderately food insecure; 2 = severely food insecure	Food security category (categorical variable)	Categorical
Independent variables		
Gender X_1	Male = 0; Female = 1	Dummy
Age X_2	Actual years of household	Actual number
Household size X_3	Household size	Actual number
Level of education X_4	Number of years spent in school	Actual number of years
Household income X_5	Household's monthly income	Actual income
Source of income X_6	Wages = 0; salary = 1; old age pension = 2; child grant = 3; other grants from government = 4	Categorical
Employment status X_7	Unemployed = 0; employed = 1	Dummy
Marital status X_8	No = 0; Yes = 1	Dummy
Access to credit X_9	No = 0; Yes = 1	Dummy

Source: own elaboration.

faced with more than two choices/categories (Bayaga, 2010). In this study, the outcome of the household food security status was categorized into three levels: 0 = food secure, 1 = moderately food insecure and 2 = severely food insecure.

The study followed an approach by Gujarati (2002) where the typical regression model is formulated as follows:

$$P_r\{Y_{i=j}\} = [B_j^{'}X_i]\Sigma\exp[B_j^{'}X_i]]jj = 0 \qquad (1)$$

where:

$P_r\{Y_{i=j}\}$ – is the probability of rural household food security status (0 = food secure, 1 = moderately food insecure and 2 = severely food insecure)

j – is the number of rural household's choice categories in the choice set

X_i – is a vector of the exogenous variables

B_j – is a vector of the estimated parameters.

Description of variables specified in the multinomial logistic regression model
This section focuses on a description of the variables specified in the MLRM. Using conclusions inferred from other studies, the *a priori* influence of various households' characteristics was estimated.

RESULTS AND DISCUSSION

This section presents the empirical results and discussion of the Mopani District Municipality (MDM). Table 2 below presents the basic statistics of all the participants in the Mopani district municipality.

Table 2 summarises the socio-economic characteristics of the rural households of MDM. The study results reveal that among the respondents, 43.4% were married. Table 2 also shows that 35.8% depended on salary as compared to the other sources of income. Most of the respondents were unemployed (62.4%) and 61.8% did not receive any remittance. The respondents rated the road condition in their villages as poor. The respondents also had a variety of family members and an average age of 59.

The next section presents the food security status of rural households in MDM.

Figure 1 provides an overview of the food security status of rural households in the Mopani district municipality using HFIAS. The descriptive results revealed that the majority (45%) of rural households from the study area are severely food insecure. These results suggest that these households are experiencing severe food

Table 2. Basic statistics of all the participants

	Variables	Frequencies	Percentages (%)
Gender	Male	66	38.2
	Female	107	61.8
Marital status	Single	71	41.0
	Married	75	43.4
	Widowed	20	11.6
	Divorced	7	4.0
Level of education	Never went to school	6	3.5
	Primary school	17	9.8
	Secondary school	72	41.6
	Tertiary school	75	43.4
	Abet school	3	1.7
Employment status	Employed	65	37.6
	Unemployed	108	62.4
Household income	Over R1000	17	9.8
	R1099–R1999	45	26.0
	R2000–R2999	52	30.1
	R3000–R3999	20	11.6
	R4000–R4999	17	9.8
	Over R5000	22	12.7
Source of income	Wages	5	2.9
	Salary	62	35.8
	Old age pension	31	17.9
	Child grant	46	26.6
	Other grants from government	29	16.8
Remittance	No	107	61.8
	Yes	66	38.2
Access to credit for borrowing money	No	112	64.7
	Yes	61	35.3
Access to arable land	No	27	15.6
	Yes	146	84.4
Road condition	Poor	113	65.3
	Good	60	34.7
Assistance from extension officers	No	173	100
Do you participate in	None	51	29.5
	Formal markets	0	0
	Informal markets	74	42.8
	Use produce for home consumption	48	27.7

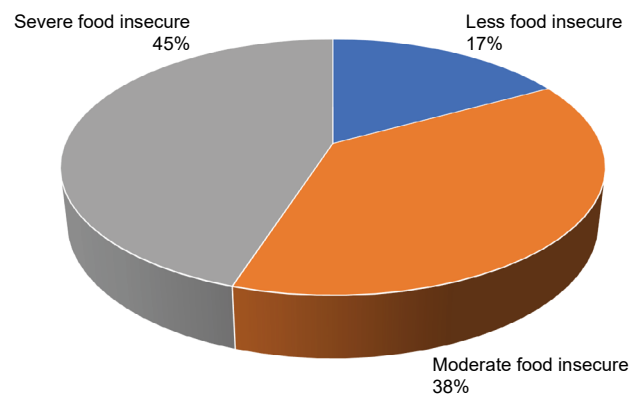|	Minimum	Maximum	Average
Age	29	89	59
Household size	1	16	9

Source: own elaboration.

Fig. 1. Household food security status of the study area
Source: own elaboration.

insecurity shocks. The results of the study further revealed that a few (38%) households of the Mopani district municipality are categorized as moderately food insecure. These results suggest that a few households are experiencing moderate food insecurity shocks from the study area. About 17% of rural households are less food insecure. Given the food security status results from the rural households in the Mopani district municipality, the district is characterised by households which are moderately to severely food insecure. Thus, given the high unemployment rate from MDM, this suggests that the majority of these rural households have access to land but are not active in terms of agricultural activities, and this is causing more households to be food insecure. The factors influencing food security status are discussed below.

Determinants of household food security among rural households of MDM

This section presents the results of the multinomial logistic regression model. Three outcomes were expected, households which were less food insecure, households which were moderately food insecure and households which were severely food insecure. Less food insecure was used as a reference term. The results of these outcomes are presented in table 3 below.

Less food insecure vs Moderately food insecure households

Concerning households which are moderately food insecure, the results of the multinomial logistic regression

Table 3. Factors determining food security among households of Mopani district

Independent variables	B	Wald	Sig.
1	2	3	4
Dependent variable: Less food insecure vs Moderately food insecure			
Intercept	4.356	0.000	0.999
Household size	0.075	0.524	0.469
Age of head of household	–0.059	3.194	0.074*
Gender of head of household	0.347	0.374	0.541
Marital status			
Single	–18.039	165.423	0.000***
Married	–17.370	171.685	0.000***
Widowed	0.294	0.000	1.000
Level of education			
Never went to school	36.451	0.000	0.996
Primary school	17.236	0.000	0.995
Secondary school	18.308	0.000	0.995
Tertiary	17.038	1.032	0.995
Employment status	0.708	0.000	0.310
Household income			
Over R1000	31.942	536.376	0.000***
R1099–R1999	–2.169	2.911	0.088*
R2000–R2999	–684	0.581	0.446
R3000–R3999	–1.265	1.918	0.166
R4000–R4999	–1.653	2.699	1.00*
Source of income			
Wages	–369	0.041	0.839
Salary	0.441	0.147	0.701
Old age pension	–0.018	0.000	0.988
Child support grant	1.818	3.180	0.075*
Access to credit for borrowing money	–1.333	3.161	0.075*

Table 3 cont.

1	2	3	4
Dependent variable: Less food insecure vs Severely food insecure			
Intercept	3.137	0.000	0.999
Household size	–0.090	0.720	0.396
Age of head of household	0.038	1.323	0.250
Gender of head of household	–0.211	0.119	0.730
Marital status			
Single	–18.942	889.936	0.000***
Married	–18.580	0.000	0.995
Widowed	–392	0.000	1.000
Level of education			
Never went to school	37.476	0.000	0.996
Primary school	18.803	0.000	0.995
Secondary school	19.529	0.000	0.994
Tertiary	17.300	0.000	0.995
Employment status	–0.508	0.386	0.535
Household income			
Over R1000	31.734	0.000	0.999
R1099–R1999	–2.518	2.783	0.095*
R2000–R2999	–0.817	0.442	0.506
R3000–R3999	0.528	0.201	0.654
R4000–R4999	0.391	0.106	0.744
Source of income			
Wages	–2.054	1.151	0.283
Salary	–2.562	4.337	0.037**
Old age pension	–1.297	1.362	0.243
Child support grant	0.994	1.051	0.305
Access to credit for borrowing money	–1.771	5.573	0.018**

Goodness of fit			
	Chi-Square	df	Sig.
Pearson	296.434	300	0.547
Deviance	246.726	300	0.989

***, ** and * indicate significance level at 1%, 5% and 10% respectively.
Source: research survey.

revealed that the age of the head of the household, the marital status of the head of the household, an income greater than R1000, an income ranging between R1099 and R1999 and an income ranging between R4000 and R4999 per month influence household food security status. Income from child support grants and access to credit for borrowing money were also observed to be significant for household food security status.

Age of the head of the household
Table 3 above shows that a negative relationship exists at a 10% significance level between the age of the head of the household and households which are moderately food insecure when compared to households which are less food insecure. These results therefore suggest that, as the age of the head of the household increases, there is a greater chance of the household being moderately food insecure. Contrary findings were noted by Mango et al. (2014), who indicated that age influences the food security status of rural households. This is because, as the age of the head of the household increases, there is a high probability of receiving an old age grant and a pension fund grant, which leads to the household having a higher purchasing power.

Single head of household
Heads of households who are classified as single were found to be negatively and statistically significant at a 1% level when comparing moderately food insecure households to less food insecure households. This negative relationship could mean that, as long as the head of a household is single, there is a higher likelihood of the household being moderately food insecure. A study done by Tomayko et al. (2017) also shares similar findings, stating that single rural adult households were found to be a factor associated with food insecurity and were also associated with significantly higher odds ($p < 0.01$).

Married head of household
According to Table 3, a negative (-17.370) and significant (1%) relationship was found between married heads of households and households which are moderately food insecure when compared to households which are less food insecure. These results suggest that an increase in the number of married heads of households is likely to lead to moderately food insecure households. On the contrary, Omotayo and Aremu (2020) indicated that married heads of households have a higher probability of being food secure as both partners might contribute to the food needs of the family.

Household income greater than R1000
When comparing moderately food insecure households with less food insecure households, a positive and statistically significant relationship at a 1% level was found towards incomes greater than R1000 per month. These results could mean that as income increases, there is a possibility of an increase in moderately food insecure households.

Household income between R1099 to R1999
A household income ranging between R1099 and R1999 per month was found to be negatively and statistically significant at a 10% level when comparing moderately food insecure households with less food insecure households. This implies that a rise in income within a household is likely to trigger a moderately food insecure household. The negative influence in this variable may have been caused by the COVID 19 pandemic since the households encountered job losses, restriction of household income and price hikes of certain commodities, such as sorghum, cooking oil, rice and maize, and maize is noted to be one of the staple foods in South Africa.

Household income between R4000 and R4999
An income between R4000 and R4999 was found to be negatively and statistically significant at a 10% level when comparing moderately food insecure households with less food insecure households. The negative relationship may infer that households which earn an income between R4000 and R4999 per month are likely to be moderately food insecure. Given the ongoing pandemic in the world and in South Africa to be precise, this negative influence could be attributed to several factors, including the employment status, level of income and health conditions of the head of the household, amongst other things.

Child support grant
Child support grant directly influences the food security status of a household. This variable was found to be significant at a 10% level with a positive coefficient of 1.818 when comparing moderately food insecure households with less food insecure households. This positive coefficient may suggest that with households which are receiving child support grants, there is

a possibility of moderate food insecurity. Chakona and Shackleton (2019) also share similar findings, affirming that social grants alone cannot eradicate food insecurity as the money that they provide is not enough to meet all household needs.

Access to credit for borrowing money

Access to credit for borrowing money was among the variables which influences the food security status of households. When comparing moderately food insecure households with less food insecure households, access to credit for borrowing money had a negative coefficient of -1.333 at a 10% significance level. These results reveal that if households have limited access to credit for borrowing money, there is a higher chance of them being moderately food insecure. On the contrary, access to credit has a positive effect on the food security of rural households as it improves food production, rural household income, food consumption patterns and contribution to the food security of households (Aidoo et al., 2013; Kehinde and Favour, 2020).

Less food insecure vs Severely food insecure households

Regarding households which are severely/more food insecure, the regression results confirmed that single heads of households, an income above R1000 per month, income from salary and access to credit for borrowing money influence households to be severely food insecure rather than less food insecure.

Single heads of households

Single heads of households were found to be negatively and statistically significant at a 1% level when distinguishing severely food insecure households from less food insecure ones. This negative relationship means that a single headed household is likely to experience a status of severe food insecurity. Similar findings were noted by Tantu et al. (2017), who stated that food insecure single headed households might be this way because of less family income and low purchasing power.

Household income between R1099 and R1999

According to Table 3, a negative (-2.518) and significant (10%) relationship was found between households earning between R1099 and R1999 per month and severely food insecure households when comparing to less food insecure households. The negative influence from this variable suggests that as household income decreases, there is a greater chance of severely food insecure households. This agrees with the existing literature that low income leads to food insecurity as heads of households have limited purchasing power (Ahmed et al., 2017).

Income from salary

Generally, income has a direct influence on household food security status. Income obtained from salary was found to be negatively and statistically significant at a 5% level when comparing severely food insecure households with less food insecure households. The explanation for this negative relationship could be that as long households are acquiring income through salary, there may be a probability of them being a severely food insecure household.

Access to credit for borrowing money

Access to credit for borrowing money was found to be negatively (-1.771) and statistically significant at a 5% level when comparing severely food insecure households with less food insecure households. These results infer that if households have no access to credit for borrowing money, there is the possibility of them being severely food insecure. On the contrary, access to credit was noted to increase food security as rural households could afford to purchase food items (Kehinde and Kehinde, 2020).

CONCLUSIONS

The study results found that approximately 45% of rural households in MDM were considered to be severely food insecure, 38% of rural households were moderately food insecure and about 17% of households were less food insecure. These results simply suggest that the majority of households in the study area are experiencing severe food insecurity shocks, while few of the rural households are less food insecure. The Multinomial Logistics Regression Model results confirmed that a household income greater than R1000 and child support grants positively influence food security status, while age of the head of the household, marital status of the head of the household, household income between R1099 and R1999, household income between R4000 and R4999, access to credit for borrowing money and income from salary negatively influence food security status.

Based on previous studies and the study results, there are signs that there is still a problem with food insecurity at the household level, and this problem is triggered by the socio-economic characteristics of households. Nevertheless, there are various strategies at hand which are being implemented by the government to alleviate food insecurity, and it seems like these strategies have become viable at a national level but not at a household level or an individual level. With the given information, the study recommends the following: Rural households of MDM were noted to be moderately food insecure to severely food insecure. In this regard, strategies such as participation in farming are advised among rural households. This may improve food availability and food utilisation among households and such households may not only produce food for subsistence purposes, but households may also even consider marketing their produce. The income generated from the sales of the produce may also assist households in acquiring additional food types, and thus ultimately improve the food security status of the household. Furthermore, socio-economic factors such as level of income and sources of income, in particular social grants, significantly influence the food security status of households. To overcome this challenge, organisations which focus on rural development and alleviating poverty, for example, should empower individuals within households to participate in development programmes such as farming and tourism, which are commonly implemented among communities. This may assist households to improve their livelihoods by acquiring skills that may assist them in being able to create businesses for themselves and creating employment opportunities for other individuals. The success of this may lead to diverse sources of income and eventually enhance the food security situation of a household as income becomes a major constituent which influences food security.

ACKNOWLEDGEMEMT

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