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# Predictors of Food Insecurity in Mathare Valley Slum in Nairobi County, Kenya

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**Abstract**
The right to food is recognized in the 1948 Universal Declaration of Human Rights as part of the right to an adequate standard of living, and it is enshrined in the 1966 International Covenant on Economic, Social and Cultural Rights. This paper looks at predictors of food Mathare Valley in Nairobi County Kenya. The study site was sampled purposively; cluster sampling was done to identify the villagers that were to be included in the study, from each cluster one village was selected using simple random sampling, Sampling of households was done based on random numbers after which a systematic random sampling was done. Lastly, purposive sampling was done to draw a sample of key informants for in-depth interviews. Data that was collected was and analyzed using quantitative as well as qualitative approaches. Two thirds of the populations were under 45 years, engaged in casual jobs that pay less than Ksh.5000/= per month that is so little for them and the families in which the majority have household with 4-6 people who have various and different needs that need to be satisfied. A regression analysis was done to establish the predictors of food insecurity. These were being enrolled in food aid programme, being young and low incomes. The study concluded that there was food insecurity in Mathare Valley, which is mainly attributed to low incomes, unemployment high cost of living. The paper recommends that community economic empowerment be undertaken as the underlying cause of food insecurity in Mathare is the economic marginalization of residents. Efforts should also be put by all stakeholders to initiate community economic empowerment initiatives so as to ensure that the economic fortunes of the community are enhanced.
**Keywords:** Food security; informal settlements, Community empowerment; nutrition training

## 1.0 Background

The universal Declaration of Human Rights of 1948 stipulates the right to food as a core element of an adequate standard of living (UN 1948). This is a human right that gives every human an entitlement to have access to food regardless of their nationalities, tribe, race or gender. Somehow more attention has been focused on household access to available food rather than food production. Emphasis on food access, or food "entitlement", as coined by Amartya Sen (1981a), is due to the recognition that increased national food production in the past has not necessarily translated into improved food security at the local level. It is, therefore, generally agreed that food security is a term which encompasses food supply and food demand issues (Shuttle worth *et al.*, 1988; Webb and von Braun, 1994). In order to have a food secure household the supply and demand issues should balance such that the food should be available in the markets and the people should have the purchasing power to buy the food stuffs.

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (World Food Summit 1996). However, according to Atkins & Bowler (2001), food insecurity may arise from a number of circumstances. These may include local food availability decline, perhaps due to a below average harvest, or an entitlement decline due to a collapse in earning capacity. But there are often other factors, such as, distribution bottlenecks in the food system, fluctuations in world prices of grain, which may restrict commercial imports.

According to FAO 2013, the number of food insecure people is still high at 842 million people in 2011–13, which accumulates to around one in eight people in the world, were estimated to be suffering from chronic hunger, this was shown by regularly not getting enough food to conduct an active life. According to Rademacher (2012), food insecurity is a major phenomenon in the African region. Indeed ever since food aid to Africa began in the late 1950s, the crisis has been characterized as a supply issue**.** A lack of successful widespread agriculture in Sub- Saharan Africa (SSA) led to the failure of local governments to provide enough food for their populations. In reaction, Western governments and aid organizations have sought to provide foreign food aid to SSA, in the form of imported crops from wealthy and developed countries worldwide. For almost half a century, (SSA) has been struggling, in one form or another, with food insecurity. Rademacher (2012), in his food security article believes that food insecurity is caused by a number of factors including distribution obstacles, global climate change, a lack of successful local agriculture, and an inability or disinterest to act by local officials**.** The situation has been further complicated by an inefficient and disorganized

 

international response to the crisis. Although it may be argued that each of these factors carries at least some validity, there is far less international consensus on the best remedy to the crisis.

Chapter 4 of the Constitution of Kenya, 2010 enshrines food as a human right. However, food and nutrition insecurity is a daily reality for millions of Kenyans living in both the rural and urban areas. According to Kenya Food Security and Nutrition Policy (KFSN) (2011) report, about half of Kenya's estimated 38.5 million people are poor, and some 7.5 million people live in extreme poverty, while over 10 million people (26 percent of the population) suffer from chronic food insecurity and poor nutrition. KFSN estimates that at any one time about two million people require assistance to access food. This means that food insecurity stands at about 6 percent of the population. During extreme weather, which is in periods of drought, heavy rains and/or floods, the number of people in need could double.

**1.2 Statement of the Problem**

This paper, drawing from results on a study on the nature of food insecurity in Mathare valley, seeks to highlights the main predictors of food insecurity and suggests some solutions to food insecurity in informal settlements in Kenya.

**1.3. Theoretical framework and Conceptual framework**

The study borrowed a lot from the system theory, which was developed by Ludwig von Bertalanffy (1968). The theory provides an analytical way to showcase the different factors involved in community development. According to von Bertalanffy (1968) a system is a set of elements standing in interaction. These could be a collection of people of neighborhoods such a Mathare Valley. Each system is defined by some sort of boundary, which can be thought of as an imaginary line which determines what is inside and what is outside of a system. Energy or influence passes across the boundaries of systems some energy is able to help communities progress in a beneficial direction, while other forms can be unhelpful. To that extent in trying to understand food security in Mathare Valley this theory helped in identifying those aspects of positive energy that underpin food security and those negative ones that lead to food insecurity.

Conceptually, the study clustered the different influences into three clusters, namely, individual factors, community dynamics and economic factors. To that extent, the independent variables (determinants) were operationalized in the form of personal factors, community dynamics and economic issues. It was anticipated that these would have a direct relationship on the dependent variable (food insecurity) which were operationalized in the form of inadequate food and inadequate purchasing power. However, there may be circumstances where other factors(intervening variables) may occur to change the direct influence of the personal factors, community dynamics and economic issues on the food insecurity (See Figure 1).

The conceptual framework for the study was also informed by Amartya Sen's entitlement theory of famine (Sen, 1981) which forms the conceptual basis of most agencies' approaches to assessing food security. Sen explains that famines occur not because there is not enough food, but because people do not have access to enough food. Of course, the availability of food near to the household is a requirement of food security. Availability is influenced by factors such as a community's proximity to centers of production and supply, or by market forces, restrictions on trade and international policies that affect food supplies. All of these are key to food-security analysis. Sen's work was nonetheless a radical breakthrough; before him, the availability of food was thought to be the dominant determinant of famine and food insecurity.

## 2.0 METHODOLOGY

**2.1 Research Design and study site**

This was a cross-sectional study design. This is because it sought to observe and establish the situation of food insecurity in Mathare Valley at a given period in time. Mathare Valley is situated in Central division of Nairobi county, the settlements are anywhere in the range of 5-17 kilometers from the city center with Mathare valley slum being the closest.

**2.2 Study Population and Sampling**

The target population for this study was adult members and head or representative of households living in the Mathare Valley. Mathare valley in Nairobi was been selected purposively for this study. The unit of analysis for the study was households. This is because food insecurity in most communities is a household level phenomenon. The participants who participated in the study were:

- The most senior member (male or female) of a sampled household
- Those who consent to participate in the study
- Those who have lived in the area for at least six (6) months

Multistage sampling approaches were used in the study. The study site was sampled purposively as the study sought to investigate food insecurity in Mathare Valley. Mathare is the largest slum in Nairobi. Secondly, cluster sampling was done to identify the villages to be included in the study. In the interest of optimizing on the time and resources available to support this study, the thirteen villages in Mathare valley which comprise 27,812 households were placed in three clusters based on the number of households in each one of them.

 

Thirdly, from each cluster one village was selected using simple random sampling. A random sample of the clusters led to selection of Village. Fourthly, the sampling of households was done based on systematic random sampling. The sampling started by selecting a household from the zone at random and then every $k^{th}$ household in the zone was selected, where *k*, the sampling interval was calculated as (N/n), that is, population divided by sample size thus in this case it meant selecting every $21^{st}$ house, until the desired sample size is attained.

Lastly, purposive sampling was done to draw a sample of key informants for in-depth interviews. These were individuals rich in information on the situation of food insecurity in Mathare. These included community leaders such a village manager, a religious leader, a women leader, a youth leader, government officials from Ministry of Agriculture and Department of Social Services; and a representative of an NGO working of food security issues.

The population of the residents of Mathare to a large extent could be said to be relatively homogeneous. A sample size of 381 was used based on Yamane (1967), for the desired confidence level of 95%and precision of 0.5, for the population of the sampled clusters which have 8151 households. The households were drawn on the basis of proportion to size of the villages randomly selected.

**2.3 Data Collection Methods and Tools**

The study collected data mainly through two main methods and tools, the interview schedule and a key informant check list of questions.

**2.4 Data Analysis**

Data collected was analyzed using quantitative as well as qualitative approaches. Quantitative data was entered in the computer and processed using the Statistical Package for Social Sciences (SPSS), V.21 and was analyzed using descriptive statistics such as means, frequencies, and percentages. Fisher's exact test was used to analyze the causes of food insecurity. Logistical regression model for predictors of food inadequacy was used to identify the significant determinants of food insecurity. On the other hand, qualitative data collected from key informants was continuously classified, coded and analyzed according to the objectives. According to Miles and Huberman (1994), processing of qualitative data is an on-going process. The main approach of analyzing the data was content analysis. This entailed generation of themes and emergent relationships between variables.

**2.5 Ethical Considerations**

The researcher obtained the required approvals and permission from the Graduate School, Kenyatta University and from the National Council for Science and Technology. Also the contacts were made with local leaders in the study site so as to secure ease of movement in the study site. The study respondents were informed of the objectives of the research and their informed consent was obtained. They were also assured of confidentiality and anonymity of their responses as well as their right to voluntarily withdraw from the interviews if they were uncomfortable at any point. The data management and logistics were dealt with where the hard copies were locked in a cabinet at all times, the soft copies both in Microsoft Word and SPSS have passwords to safe guard the data and the information.

## 3. 0 RESULTS

**3.1 Demographic and Socio-Economic Characteristics of the Respondents**

Of the respondents who took part in this study, 45.16 were male while 54.84% were female. Almost half of the respondents were in their youthful age group 18-34 years accounting for 49.1 % of the sampled population. Those in the ages of 35-44 years accounted for 22.2%. In the in general more than two-thirds of the respondents about (80.7%) were aged below 45 years and thus Mathare Valley could be said to host a very youthful population, a population which is also in the prime working age group.

Further, 47.3 % of respondents were married while 33.2 percent were single and 11.0% separated. Thus this shows that just a half of the respondents are married. Christianity is the most dominant religion as shown by the fact that 77.0 % of respondents were Christians while 13.6% prophesied Islamic faith. The Christians include the Catholics and the other protestant churches.

In order to determine the nature and prevalence of food insecurity in Mathare Valley the study sought to establish the number of people in the households sampled. Size of a household would naturally be expected to have implications on food security, households with four to six members are a majority at 40.2%. This is followed by households with up to three people at 39.6%and households with 7 – 10 people at 16.2%. Respondents from households with five people were 13.1 %. However it is important to note that there were a few households with more than ten people at 1.1%. What is apparent is that generally majority of respondents (56.4%) came from households with large numbers of people (4 – 10), and thus the issue of their food security would be an important consideration. *According to the area administration officer, in Mathare Valley majority of the household have members ranging from 5- 10, these huge numbers make it hard for the families to be food securer.* These results are consistent with a 2011 study by Pendekezo Letu that showed that the average household size in informal settlements is 6.4 persons and that in Nairobi's slums, up to eight (8) persons share a single room, in an environment where most of the shelter is made of iron sheets, plastic, mud and timber.

The study also established that at least (41.3%) of the respondents were educated up to at least secondary school.

 

It is also important to point out that some of the respondents (6.8%) had university level education and this could be indicative of low economic security and by implication food insecurity. The study found out that a large percentage (37.1%) of the respondents were unemployed, while those in employment, whether in public or private sector constituted only 25.6%.The self-employed people were at 28.2%. Among the self-employed businesses they include business ladies/ men, driver jobs, hairdressing, artisans, petty trading *(mama mboga),* water vending among others. Self-employment in Mathare Valley has a wide scale of activities *according to the area administration officer, but the most common type of business the people carry out is petty trading which including buying and selling of household goods in small quantities such as groundnuts, roasted maize, fish from City market, the other casual jobs range from porter jobs, construction jobs. Similar findings were reported by the religious leader with Mathare Community Outreach church (MCO)who stated that there is a lot of petty trading in the area that makes the people more economically insecure due to the kind of stuffs they sell and the returns they make at the end of the day. Both the area administration officer and religious leader agree that there are a lot of unemployed people at the Valley largely due to lack of proper educational background.* By and large these results paint a picture of a population that is largely economically insecure and thus could also be food insecure due to limited economic capacity.

Results on the distribution of incomes of respondents show that the majority 62.9%of the respondents earn salaries of below 8,000 thousand Kenyan shillings. According to the 2013 minimum wage for labourers in Nairobi set at a monthly rate of ksh. 9,780. According to the 2005/06 Kenya Integrated Household Budget Survey (KIHBS) it estimated that the food poverty line in monthly adult is equivalent to Ksh. 1,474 in urban areas while it's Ksh. 998 in rural areas). The absolute poverty line in a month for an adult was found to be equivalent to Ksh. 2,913 for urban areas compared with Ksh. 1,562 for rural areas. This indicates that poverty levels are so high. This is indicative of low economic capacity of the residents of Mathare. This could be indicative ultimately of food security given that food has to be purchased with the little disposable income. With these 62.9% that have an income of less than 8,000 per month, in a place where they have to pay for everything *the area administration officer pointed out that the money is not enough due to the high cost of living in the area where the rental rates start from a minimum of 1000 per month, they have to pay for the water, electricity, food, toilet facilities and other household expenses. Considering that there are a lot of unemployed residents who do the casual jobs that pay minimum low wages.* For instance, a religious leader noted that, *the luggage carrying jobs they are paid a minimum of Ksh50.*

**3.2 Prevalence of food insecurity**

This study sought to determine the prevalence of food insecurity and the majority of respondents (70.0 %) agreed that there is food insecurity in the area. Maize was mentioned by a majority of the respondents as a staple food. Most of the other food mentioned, such as, githeri, and ugali however comprise maize as one of the ingredients. The choice of a staple food or a meal to be consumed in any household depends on the amount of income that a household earns and the source of income, with limited income, the residents find maize most appropriate for their consumption at any time. Further, while the majority of children had at least three (3) meals a day, majority of adults had at most two meals a day. With 11.5% of respondents reporting that adults have one meal a day (see Table 1). This is reflective of food insecurity amongst the respondents. One respondent reported a zero frequency of meals for adults and for children below five years, possibly indicating the uncertainty of getting a meal.

With regard to the sources of food, 61.4% of the respondents reported that they purchase their food. The food was purchased from the local markets. On the other hand, there are those who obtained food by being paid in kind that is, those who labor and are paid in kind, and these constituted 15.1% of the respondents. Food aid programs which are well established in Mathare Valley were a source of food for 9.5% of the respondents. In light of the low incomes, then it could be deduced that by and large the local incomes are not likely to enable residents to purchase adequate food. According to Mahbubul Haq Human Development Center (2002), availability of food within a country does not necessarily show that every household and individuals have access to enough and sufficient food and are food secure, the center argues that for one to be food secure they should have enough income in order to be able to purchase the food, or one should have the capacity of doing own production so as to be able to feed him or herself.

Food security is also a factor of availability of food. Majority (51.7 %) of the residents were of the view that there was inadequate supply of food stuff in the market which in turn culminated into overall food inadequacy at the household level. The inadequacy was blamed, among other reasons, on increased market prices of food, which was as a result of relatively low incomes earned.

**3.3 Causes and nature of Food Insecurity**

The study found that food insecurity is typified and caused by a variety of factors. Table 2 presents some of the typical causes of food insecurity as identified by respondents. These included:

*Income and food insecurity*

As shown on table 1, there are various causes of food insecurity in Mathare valley informal settlements, and low

 

income levels in Mathare Valley were cited by most respondents (41.1%) as the major cause of food insecurity. This is understandable given earlier finding that the income levels of the residents are below what is considered as minimum wage for Nairobi. With most respondents earning about Ksh.5000, this poses a great challenge in acquisition of foodstuffs to the residents who largely depend on food purchases. *Both the religious leader and the administrative officer stated that the low incomes are a cause of food insecurity in the area, due to lack of jobs.* Hence with these low income rates available for the households then food insecurity is a reality. According to Great Horn of Africa Security Bulletin, (June 2004), the increase if food prices is hindering the purchase of food by Kenyans in a study of maize consumption in the country this is due to the increase in prices that makes it hard for the population to be able to purchase the basic commodities such as food. It is also important to point out that as indicated in the table 3, statistical analysis using Spearman's rank correlation showed ar = .201, $p \leq 0.0$, and therefore income and food inadequacy are correlated.

So as to further analyze the nature and causes of food insecurity, the study sought to establish whether there was a relationship between other socio-demographic variables and food insecurity. By running a correlation analyses between these variables, the following statistics were obtained:

*Age and Food Inadequacy*

One's age would be expected to determine their capacity to provide for themselves and at the household it would be expected that those as older persons and minors could have limited to address their food security concern. Spearman's correlation analysis (see table 4), however, show that there is no relationship between one's age and food insecurity. The conclusion therefore is that food insecurity in Mathare affects all irrespective of their age. Action should therefore be taken by all stakeholders to ensure food security for all residents in Mathare irrespective of their age.

*Gender and food insecurity*

The study analyzed the relationship between gender and food insecurity in Mathare by running an analysis of variance (ANOVA). , the results (see table 5) show that there is a significant relationship between one's gender and food insecurity. Qualitative data showed that women were more likely to be food insecure than men.

*Education and food insecurity*

One's level of education ordinarily has implications on their ability to secure a livelihood. Thus it would be expected that the more educated an individual is the better chances of securing a livelihood and thus being food secure. *The administration officer clearly said that the low educational levels of the residents in Mathare Valley often if not all the time hinder them in securing better employment and good income rates.* Results in this study (Table 5) however show that for Mathare informal settlement, one's education level may not be a sufficient guarantee of being secure. Statistical analysis returned a coefficient of correlation r= 0.102, $p \leq 0.05$, thus depicting a very weak correlation between education and Food insecurity.

The coefficient of correlation r= 0.102, $p \leq 0.05$ depicts a very weak correlation between education and Food insecurity a fact that is supported from the frequency analysis above.

*Insecurity, political instability and food insecurity*

The other main causes if food insecurity include insecurity (16.9 %) and political instability (16.6%). respectively.

*Infrastructure and food insecurity*

Poor infrastructure was another challenge faced by the Mathare Valley people this starts from poor road networks, security issues which at the end affect the flow of food stuffs to the market. Most of the roads with the Mathare valley are foot paths which are inaccessible by vehicles and also when it rains it's also a challenge for suppliers to deliver food stuffs to the markets.

*Unemployment and food insecurity*

The study also established that unemployment or lack of jobs was mentioned as a challenge in getting adequate food for the family or the individuals. The study found out that 37.1 % of the sample population was unemployed this almost half of the sampled population, this indicates that they don't any benefits that come along with one's job. It was noted that even the other percentage of the employed people their jobs are not well paying and a majority being casuals in the job they do. This leads to income challenges.

**3.4 Predictors of food inadequacy**

Further analysis to determine the major causes of food insecurity was done through development of a logistical regression model (see Table 6).

The model found that there were three significant predictors of food inadequacy. (Significance level was determined at P=0.005). The statistically significant predictors were in enrolment in a food aid programme, monthly income and age.

*Food aid*

Enrollment in a food aid programme was a highly significant indicator (*p=0.0002*) of food inadequacy. With odds ratio of 0.295 meant that there were lower odds, 70.5% of respondents enrolled in food aid were food insecure. This could be explained by the fact that being enrolled in a food aid programme was confirmation that

 

one was already identified as food insecure. Key informant interviews also revealed that the residents of Mathare Valley who are enrolled in a food aid programme receive some food, but the food is not adequate thus the population still remain food insecure as most of them depend only on this inadequate food that they are being provided with.

*Age*

One's age was also found to be statistically significant predictor of food adequacy (*p=0.0098*) as to whether one is food insecure. The odds ratio (OR) of 0.651 meant that there were lower odds of 35% of the respondents are young and food insecure. Indeed the model revealed that the lower the age, the higher the chances of food insecurity. The study established that the younger people are the majority, and most of them are unemployed thus face the challenge of acquiring food. Moreover, some households are headed by minors, who also have challenges providing for themselves and their siblings.

*Monthly Income*

The model established that that income is also statistically significant predictor of food inadequacy (*p=0.006*). Generally, the amount of income that one has determines the level of food insecure or secure he or she is. Elsewhere in the study it has been shown that the respondents are food insecure because their level of incomes are below the minimum wage of Nairobi rates. This attributed to by the lack of proper employment, low educational background.

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

### 4.1 CONCLUSIONS

From the foregoing, various conclusions can be drawn. First, the main socio-demographic predictors of food aid are being enlisted in a food aid programme due to low income, age, and low income (poverty). Simply socio-demographic characteristics of residents predispose them to food insecurity. They are youthful and economically marginalized and thus vulnerable to food insecurity. Being enlisted in food aid programme is not only confirmation of their food insecurity but can also compound the problem because people can become complacent. On the basis of the regression analysis, the study concluded that the main cause of food insecurity is the economic insecurity of the residents as they earn incomes that are too low to sustain a decent level of living.

### 4.2 RECOMMENDATIONS

From the foregoing conclusions, food insecurity in informal settlements can be addressed through, one, community economic empowerment as the underlying cause of food insecurity in Mathare is the economic marginalization of residents. Efforts should be put by all stakeholders to initiate community economic empowerment initiatives so as to ensure that the economic fortunes of community are enhanced. Further, a community nutrition education programme should rolled out with a view to educating communities on how to work with available food stuffs to meet their nutrition requirements.

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## FIGURES AND TABLES

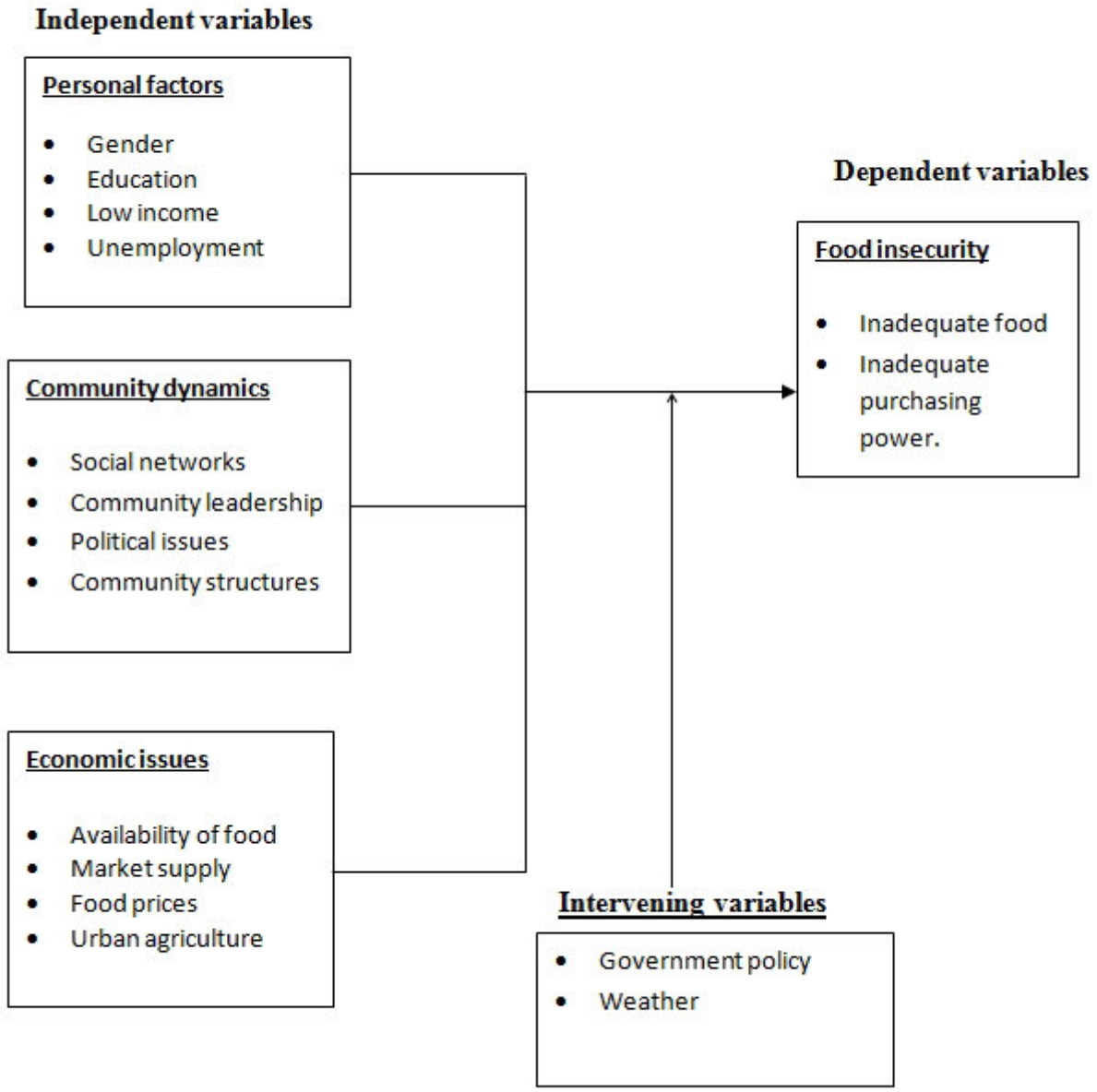


**Figure 1.1 Conceptual framework**

**Table 1: Frequency of meals**

| Number of times | >18 years | | 5 years - 18 years | | 6 months – 59 months | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| 0 | 1 | .3 | - | - | 1 | 3 |
| 1 | 44 | 11.5 | 11 | 2.9 | 3 | 8 |
| 2 | 141 | 36.8 | 86 | 22.5 | 32 | 8.4 |
| 3or more | 137 | 35.8 | 132 | 34.5 | 111 | 29.0 |
| No response | 60 | 15.7 | 154 | 40.2 | 236 | 61.6 |
| **Total** | **383** | **100.0** | **383** | **100.0** | **383** | **100.0** |

 

**Table 2: Causes of food insecurity**

| Causes of food insecurity | Frequency | Percent |
|---|---|---|
| Income | 134 | 41.1 |
| Religion | 3 | .8 |
| Education | 24 | 6.3 |
| Insecurity | 55 | 14.4 |
| Population size | 35 | 9.1 |
| Political instability | 54 | 14.1 |
| Poor infrastructure | 13 | 3.4 |
| Idleness | 8 | 2.1 |
| No response | 57 | 14.9 |
| **Total** | **383** | **100.0** |

**Table 3: Correlation between income and food insecurity**

| | | | YES OR NO | BELOW 1000, 1000-2000, 2000-5000 |
|---|---|---|---|---|
| Spearman's rho | YES OR NO | Correlation Coefficient | 1.000 | .201** |
| | | Sig. (2-tailed) | . | .001 |
| | | N | 372 | 293 |
| | BELOW 1000, 1000-2000, 2000-5000 | Correlation Coefficient | .201** | 1.000 |
| | | Sig. (2-tailed) | .001 | . |
| | | N | 293 | 299 |

**. Correlation is significant at the 0.01 level (2-tailed).

**Table 4: Age and food insecurity**

| | | <18, 18-34,35-44, 45-54, 55-60, >60 | YES OR NO |
|---|---|---|---|
| <18, 18-34,35-44, 45-54, 55-60, >60 | Pearson Correlation | 1 | .073 |
| | Sig. (2-tailed) | | .162 |
| | N | 376 | 366 |
| YES OR NO | Pearson Correlation | .073 | 1 |
| | Sig. (2-tailed) | .162 | |
| | N | 366 | 372 |

$p = 0.162 \geq 0.05$, hence Age is not correlated to Food inadequacy, likewise, correlation coefficient $r = 0.073$

**Table 5: Education and Food Insecurity**

| | | | YES OR NO | NONE, PRIMARY, SECONDARY, COLLEGE, OR UNIVERSITY |
|---|---|---|---|---|
| Spearman's rho | YES OR NO | Correlation Coefficient | 1.000 | .102 |
| | | Sig. (2-tailed) | . | .05 |
| | | N | 372 | 366 |
| | NONE, PRIMARY, SECONDARY, COLLEGE, OR UNIVERSITY | Correlation Coefficient | .102 | 1.000 |
| | | Sig. (2-tailed) | .052 | . |
| | | N | 366 | 374 |

 

**Table 6: Predictors of Food Inadequacy**

| **Variable Name** | **Parameter Estimates** | **Std. Error** | **Wald $X^2$** | **DF** | ***p*-value** | **Odds Ratio** | **95 % CI** | |
|---|---|---|---|---|---|---|---|---|
| Intercept | 3.6411 | 1.1159 | 10.6464 | 1 | 0.0011 | - | - | - |
| Duration in Mathare | 0.0714 | 0.1342 | 0.2836 | 1 | 0.5944 | 1.074 | 0.826 | 1.397 |
| Education | 0.0141 | 0.1925 | 0.0054 | 1 | 0.9415 | 1.014 | 0.696 | 1.479 |
| Household size | 0.0265 | 0.0690 | 0.1476 | 1 | 0.7008 | 1.027 | 0.897 | 1.175 |
| Age | -0.4298 | 0.1664 | 6.6702 | 1 | 0.0098** | 0.651 | 0.470 | 0.902 |
| Gender | 0.2002 | 0.3308 | 0.3664 | 1 | 0.5450 | 1.222 | 0.639 | 2.336 |
| Marital status | 0.1927 | 0.1848 | 1.0872 | 1 | 0.2971 | 1.213 | 0.844 | 1.742 |
| Food aid | -1.2193 | 0.3309 | 13.5818 | 1 | 0.0002*** | 0.295 | 0.154 | 0.565 |
| Monthly income | -0.3020 | 0.1100 | 7.5397 | 1 | 0.0060** | 0.739 | 0.596 | 0.917 |
| | | | Chi-sq. | DF | *p*-value | | | |
| | Likelihood Ratio<br>Wald | | 28.5140<br>23.8787 | 8<br>8 | 0.0004<br>0.0024 | | | |

*$p$<.05, **$p$<.01, ***$p$<.001