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RESEARCH ON SOCIO DEMOGRAPHIC FACTORS INFLUENCING STUNTING IN CHILDREN AGED 6-59 MONTHS: A CASE OF RONGAI SUB COUNTY KENYA

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Abstract

Adequate nutrition is important for the growth and development of a child. Nutrition is an important determinant of health and general development of a society. A society whose children are malnourished is more likely to be poor and has high incidence of preventable diseases. Several factors have been identified as causes of malnutrition. Immediate causes include inadequate or inappropriate dietary intake, infectious disease and household characteristics. While these could be main causes of malnutrition, context specific factors contribute to malnutrition in various areas such as arid lands, highlands, urban and rural areas. Despite the efforts of the government of Kenya and other partners, malnutrition rates especially stunting in rural areas remain exceptionally high. There are very few empirical context specific studies to investigate the determinants of the high stunting rates in rural areas in Kenya. This study was designed to investigate the determinants of stunting. It examined the socio demographic factors influencing stunting in children aged 6-59 months in Rongai Sub County Nakuru County in Kenya. The study used descriptive design and was delimited to Rongai Sub-County. Random sampling method was be used in selection of the respondents. Anthropometric measurements (age, weight and height) will be taken for children aged 6-59 months. Questionnaires with structured and unstructured questions were used to collect primary data from caregivers of children aged 6-59 months. Quantitative techniques were used to analyze the data obtained from the field. Statistical package for social

sciences was used in data management and analysis of caregiver survey data while ENA SMART was used to analyze nutrition data. Findings were presented in the form of percentages, frequency tables and graphs. Findings indicated that food security, alcohol uptake during pregnancy, number of children in an household and exclusive breastfeeding influence stunting in aged 6-59 months. Results from this study will be used by the policy makers, implementers and other development practictioners such as nonprofit organizations to design programmes that will address malnutrition.

Introduction

Child malnutrition remains a serious problem affecting rural communities in Kenya. Results from Kenya demographic and health survey indicate that 26% of children under five years are stunted, 4% are wasted and 11% are underweight (KDHS 2014). Adequate nutrition is important for the growth and development of the child. The period between birth and 2 years is especially important for optimal physical, mental and cognitive development. A child at this period is often affected by nutrient deficiencies that interfere with optimal growth and development.

A complex set of causes influences malnutrition. Immediate causes range from inadequate and/or inappropriate dietary intake and infectious diseases (Yimer 2000). These causes are influenced by the socio economic, demographic, child feeding and child care practices. A child's environment also has direct and indirect influence on its growth. Poor access to clean water and sanitation facilities predisposes a child to diarrhea which in turn affects nutrition uptake and ultimately malnutrition.

Malnutrition trends and its causative factors may differ from region to region and from one community to another. Anthropometric surveys conducted in 2016 by World Vision Kenya in Elgeyo Marakwet, West Pokot and Nakuru counties revealed that the stunting rates areas are 38.5% in Soin, 45.9% in Tunyo, 45% in Rongai and 49% in Sook area development programmes (Un published data). These stunting rates are way above the national stunting rate of 26% (KDHS 2014).

Factors influencing stunting should be identified to enable the policy makers and implementers to design appropriate interventions that will address malnutrition and spur socio economic development of the society. This study explored social demographic factors that influence stunting in Rongai Sub County located in the Central Rift region of Kenya.

Statement of Purpose

The purpose of this research project was to assess the socio demographic factors influencing stunting in children aged 6-59 months in Rongai Sub County Kenya.

Research questions

The research team answered the following question through this study; What is the relationship between social demographic factors and stunting in children aged 6-59 months?.

Hypothesis

The following are the research hypothesis;

Alternate hypothesis

Social demographic factors such as food security, number of children in an household, exclusive breastfeeding and alcohol uptake during pregnancy influences stunting in children aged 6-59 months

Null hypothesis

Social demographic factors such as food security, number of children in an household, exclusive breastfeeding and alcohol uptake during pregnancy does not influence stunting in children aged 6-59 months

Literature Review

"Children are the World's most valuable resource and the best hope for the future. They are the next politicians and doctors, business tycoons and scientists, the future leaders and intellectuals who one day will shape the world with their ideas and actions". John F Kennedy. Children growth and development especially in rural communities in Sub Sahara Africa is hampered by preventable diseases such as malaria, diarrhea and malnutrition among other factors. According to Pelletier et al (1994), malnutrition is responsible for 55% of all deaths of children below five years of age in the world. Ezzati et al 2003 concurs that 28% of all deaths in Africa are as a result of under nutrition.

Under nutrition can range from inter uterine growth retardation which will lead to low birth weight; under weight, stunting, wasting and micro nutrition deficiencies (Horton 2008). Stunting in children is irreversible unlike wasting and underweight which are reversible.

WHO, 2004 defines stunting as having low height for age at less than -2 SD of the median value of the National Center for Health Statistics/WHO (NCHS/WHO) international growth reference. Children whose height-for-age, Z-score is below minus two standard deviation (-2SD) are considered short for their age (stunted) and are chronically malnourished. Stunting is a manifestation of nutrient deficiency over a long period of time and is exacerbated by recurrent childhood illnesses such as diarrhea and malaria.

According to Pettener and Toselli, (2007), stunted growth is manifested by reduced growth rate in human development. It is a primary manifestation of malnutrition in early childhood, including malnutrition during fetal development as a result of malnourished mother. Maternal malnutrition is contributed by inadequate dietary intake and alcohol abuse during pregnancy. Stunting is a cumulative process that can begin in utero and continue to about three years after birth.

Research has found that linear bone growth occurs in episodic or salutatory process such that a stasis period of one or more days of no growth is punctuated by a daily saltation of growth (Lamp et al., 1992). This explains the chronic nature of stunting and the fact that it is irreversible and increases with age.

Determinants of nutrition

Determinants of nutrition are varied as shown in the table below. They range from food security, access safe water, sanitation and hygiene, public health and household characteristics. Food security indices such as food consumption patterns, household dietary diversity score, household food consumption score and household coping strategy index have a bearing on the growth and development of a child. On the other hand children affected by worm infestation, or common childhood diseases such as diarrhea and malaria are susceptible to malnutrition. Poor access to clean and safe water coupled with indiscriminate disposal of fecal matter is a predisposing factor to diarrhea which is another cause of malnutrition in children.

Food security	**WASH**	**Public Health**	**Household Characteristics**
Food consumption patterns	Water Access	Immunization	Residency
Household Dietary Diversity Score	Water treatment	Morbidity	Marital status
Household Food Consumption Score	Hand washing (Hygiene)	Health seeking Behavior	Level of education
Household Coping Strategy Index	Sanitation (Relieving Points)	Supplementation	Main occupation of HHH
		Deworming	Main source of income

Table 1: Determinants of nutrition

Causes of stunting

Research by Alderman and Kinsey, (2003) revealed that malnutrition is not just about the lack of food. They argued that there are three immediate (proximate) causes of an individual child becoming stunting. These are inadequate food intake, low birth weight and the incidence and management of common childhood illnesses. Diseases reduce nutrient intake due to loss of appetite and mal-absorption of nutrients. Inadequate dietary intake on the other hand predisposes a child to common childhood illnesses. These primary causes of stunting are rooted in problems at household level.

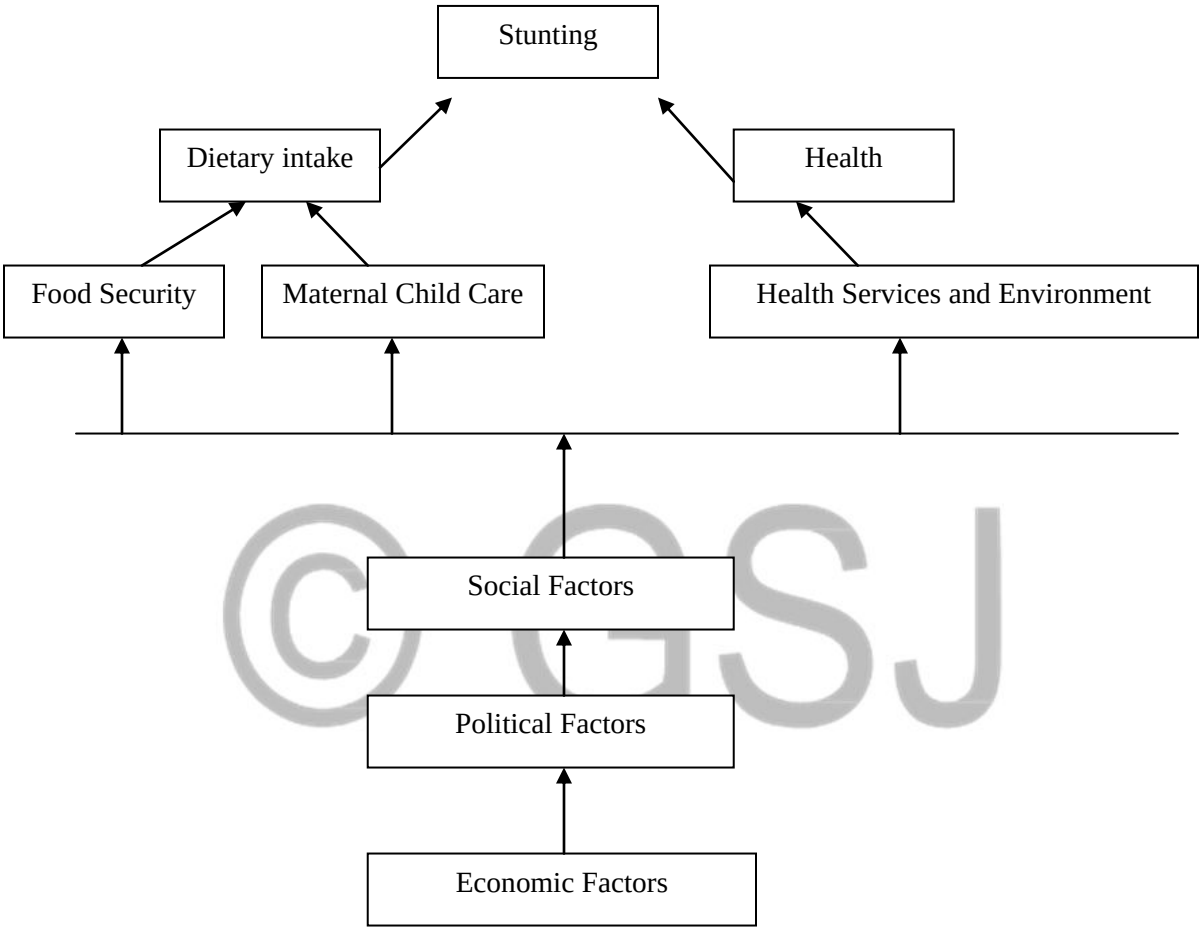

Figure 1: Conceptual framework showing causes of stunting (Milman et.al., 204)

Heady, Hodge (2009) noted a positive relationship between the number of siblings and a child's chance of being stunted. The more the children in an household, the more the likelihood of younger children being stunted. A larger number of children in a family may increase the likelihood of infection by common child hood diseases due to resource dilution and overcrowding.

Proper feeding practices are instrumental in promoting a child's nutrition. Poor feeding practices on the

other hand can lead to inadequate food intake in infants even in households that are doing well economically. Parishad (2004) conducted a research in India which revealed that prolonged food deprivation is an important contributor to stunting.

Inadequate access to safe water, poor access to sanitation facilities and low immunization coverage predisposes children to common childhood illnesses which affect nutrient intake and thus stunting. An unsanitary environment may have broader effects on children than just those associated with particular bouts of overt illnesses. Children who are not apparently infected, may nonetheless have an immunological response that diverts specific nutrients from normal growth thus restricts length gain (UNICEF 1997).

Effects of Stunting

Stunting has adverse effects on a child's growth and development. Once a child is stunted, he/she will remain so and experience effects of stunting for life. The timing and duration of the nutritional insult leads to different physiological consequences (Bhutta et. al. 2007). Stunting in early childhood is associated with detrimental effects on intelligence quotient, psychomotor development, fine motor skills and neuro-sensory integration (de Onis et al,. 2005). Stunting affects the mental capacity and school performance thus the productivity of an individual later in life.

Stunting in childhood leads to reduced adult size and reduced work capacity. Stunted children may never regain the height lost as a result of stunting and stunted children may never regain corresponding body weight (Black et al., 2008). A research conducted by Pelletier, et al. (2003) revealed that women of short stature are at a greater risk of obstetric complications because of smaller pelvic sizes. Small women have a greater risk of delivering an infant with low birth weight. This leads to an intergenerational effect since low birth weight infants tend to attain smaller size as adults. It also leads to premature death later in life because vital organs never fully develops during childhood (Bhutta et. al. 2007).

Conceptual framework

This research investigated the socio demographic factors that influence stunting in children aged 6-59 months. The following conceptual framework guided the study;

Figure 2: Conceptual framework

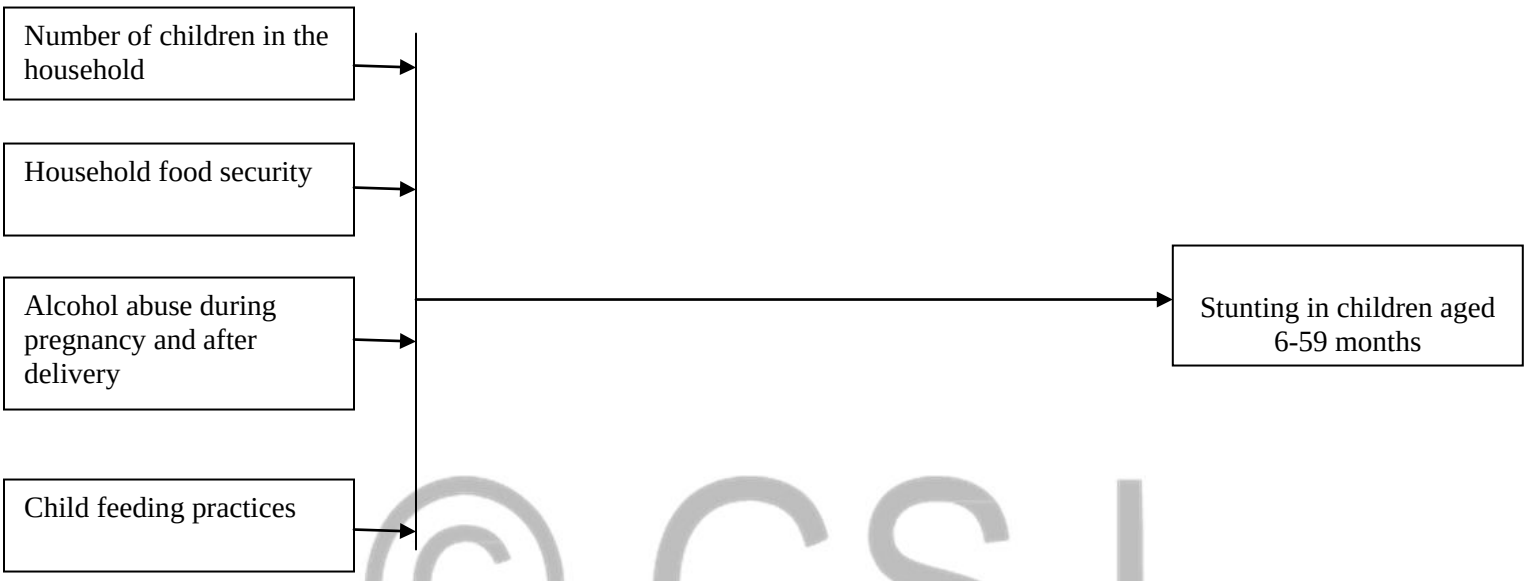

Figure 2: Conceptual framework for the study

This study investigated the relationship between number of children in the household and stunting in under five children. It also assessed household food security and its influence on stunting in children under five years of age. Dietary diversity and meal frequency were assessed to determine access to food and results triangulated with coping strategy index scores.

Methodology

This study employed both quantitative and qualitative methods to identify research participants, collect data, analyze and present the data. Descriptive research was adopted to provide data that answered the research question; what is the relationship between socio demographic factors and stunting in children aged 6-59 months?

Approval to conduct the study was obtained from IRB. A duly signed approval from IRB board is attached in the appendix. In summary, care was taken to ensure confidentiality of the research participants.

Sampling

Study design

This research adopted a non experimental research design to assess the socio demographic factors influencing stunting. Descriptive research study was used since it was well suited to collect data to answer research questions concerning the current status of the subject of the study. It can explore the influence of such things as possible behavior, attitudes, values and characteristics, Mugenda (2003).

Criteria for methods and subject selection

Research participants were caregivers of children aged 6-59 months in Rongai Sub County. Children aged 6-59 months from the sub county also constituted the research participants.

Description and number of subjects

A reasonable sample size is the one that ensures that all reasonable sources of variation are captured (Cochran 2007). The formula by Kothari (2004) was used to calculate the sample size for this study as shown below,

$n = z^2pq/e^2$

where:

n is the desirable sample size;

p is the proportion of population containing attribute of interest (stunting is 46%); q represents (1-p).

z ,1.96 is the standard variance given at a confidence level (alpha=0.05) e is the acceptable error (0.05)

Therefore:

n=sample size= $(1.96)^2 0.46*0.54/(0.05)^2$

According to the above formula, sample size (n=382) children aged 6-59 months.

Sampling technique

The study was done in Nakuru County Rongai Sub County in the Republic of Kenya. Multi stage sampling technique was adopted for this study. Each ward was considered as a strata and data collected from each strata hence stratified random sampling. Each strata was apportioned a sample proportionate to its population. Sub locations formed clusters in the study area. The study adopted cluster sampling and apportioned a sample to a cluster proportionate to its population. Thereafter purposive sampling was used to identify sampling units (households) with children aged 6-59 months.

Procedures

Data collection methods

Interviewer administered questionnaires were used to collect household data. Simple questionnaires characterized by simple, structured questions were used to obtain reliable information from the respondents. Anthropometric measurements was also done. These measurements targetted children aged 6-59 months. Height and weight were measured and age in months of the child recorded. These variables were useful when analyzing nutrition status of the children.

Secondary data review was also conducted. This included surveys conducted in the area as well as any other relevant data available in the sub county offices.

Measurement Methods

Interviewer administered questionnaires were developed and pretested before the actual data collection. Pretesting was done in nearby Subukia Sub County. Subukia Sub County has similar characteristics to the research area hence was conducive for pretesting.

Procedures

Structured questionnaires were developed and administered by the enumerators who were trained by the research teams. Enumerators with prior experience in data collection were given a priority during recruitment. This is because they were already conversant with research protocols.

Data analysis

The information generated was subjected to analysis to enable the research team to generate patterns and relationships. Statistical data analysis techniques such as Ms. Excel and SPSS were used in the analysis of the information obtained and presented in form of tables, bar graphs and pie charts. Nutrition data was analyzed using ENA SMART software.

Data cleaning was conducted prior to analysis. During data cleaning, questionnaires were checked for completeness and consistency. Inconsistencies that can be logically corrected were edited and rectified. Data entry was then done based on the codes indicated in the questionnaires. For example "Yes" responses were coded "1" while "No" responses were coded "0".

Data was then analyzed using SPSS Statistical program and ENA SMART for anthropometric data. Descriptive and inferential statistics were generated. For example the mean number of persons per household was be calculated.

Study Limitations

Sampling Limitations

The sampling limitations that was experienced include recording measurement and recording errors by

the enumerators who were measuring height and weight. This was mitigated by training of enumerators and quality supervision to ensure that they measurements are correctly taken and recorded.

Threats to Study Validity

Threats to study validity that had been anticipated included selection bias and statistical regression. It was presumed that research enumerators may choose participants from a certain locality or with certain attributes thus introducing bias to the study and affecting the validity of the findings. This was avoided by training the enumerators and strictly adhering to randomization. Statistical regression can occur if priority is given to respondents with a certain or extreme attributes. For example sampling caregivers with children below twelve months old or caregivers who are alcoholics. This was mitigated by randomly selecting research participants from a normally distributed population.

Methodological Limitations

The fact that this study was carried only in Rongai Sub County was another limitation. Factors influencing stunting may not be uniform throughout Kenya as it is possible that there are context specific challenges across the geography of Kenya affecting nutritional status of children aged 6-59 months. The findings of the study can only be generalized to areas with similar characteristics.

IRB Issues

Confidentiality of the participants was assured by ensuring that identifiers such as names are not stated in the research tools. Informed consent was also sought from the research participants before data is collected.

Results

Household demographics

The study revealed that the average household size in Rongai Sub County is 5.47 persons per household. This implies that on average each household has 5 persons. Household size reflects the burden of care in each household. 80.4% of the respondents who participated in the study were female while 19.6% were male. Regarding level of education completed by the caregiver, 40.2% had completed primary education, 29.9% secondary, 19.8% post secondary and 10.1% had never gone to school. Regarding the number of children aged 6-59 months, 82% of the households had one or two children, 13.1% had either three or four and 4.9% had more than four children.

Child Nutrition

388 (45.4% boys, 54.6% girls) children participated in the anthrometric survey. Age in months, weight in kilograms (rounded to nearest 0.01kgs) and height in centimeters were recorded. Children 6-23 months were measured while lying down on the height board while children 24-59 months were measured when standing. Height measurements were recorded to the nearest 0.1centimetres.

Analysis of the anthropometric measurements revealed that 41.2% (36.3 - 46.1 95% C.I) of the children in Rongai Sub County are stunted. Analysis per gender further revealed that more boys are stunted compared to girls. 47.8% (40.42 - 55.18 95% CI) of the boys are stunted compared to girls whose stunting rate is 35.9 % (29.44 - 55.18 95% CI). A further Pearson Chi-square analysis to check whether there is significant difference between stunting in boys and girls revealed that there is no significant difference between stunting in boys and girls (Asymp.Sig. 2-sided 0.864). The table below shows prevalence of stunting, moderate stunting and severe stunting in children 6-59 months in Rongai Sub County.

	All n = 388	**Boys** n = 176	**Girls** n = 212
Prevalence of stunting (<-2 z-score)	(160) 41.2 % (36.3 - 46.1 95% C.I.)	(84) 47.8 % (40.42 - 55.18 95% C.I.)	(76) 35.9 % (29.44 - 42.36 95% C.I.)

Table 2: Prevalence of Stunting in Rongai Sub County

Household Food Security and Stunting in children aged 6-59 months

The study showed that 66.8% (62.11-71.49 95% CI) of the households are food secure and have adequate food to cater for their family needs throughout the year. 33.2% (28.51 - 37.89 95% CI) of the households on the other hand were found to be food insecure. A test of association between stunting and food security revealed that there is an association between stunting and food security (Phi value > 0). A further test of the strength of association revealed that the association is weak (Phi value 0.076). The graph below shows findings on food security

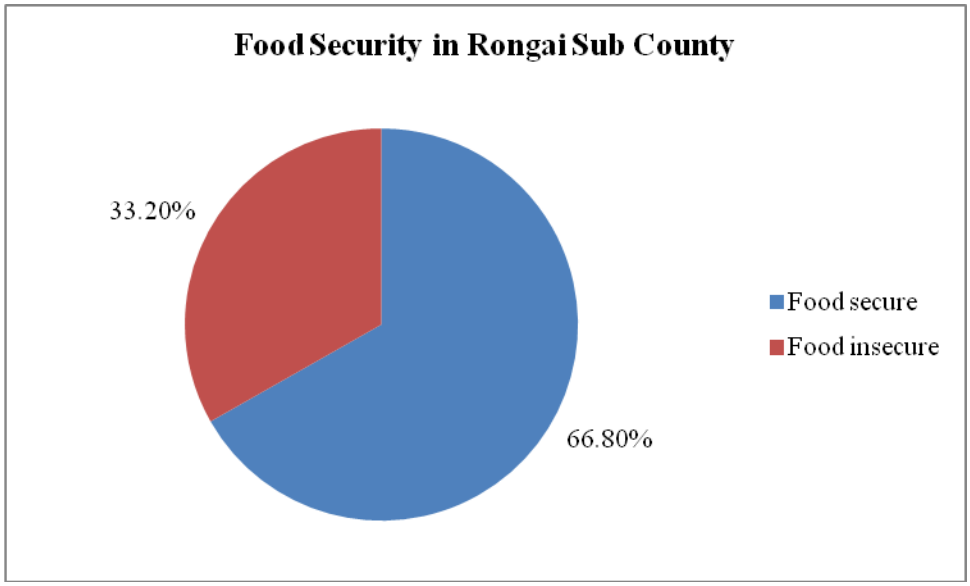

Figure 3: Food security in Rongai Sub County

Number of children in an household and stunting in children aged 6-59 months

The findings indicated that the average number of children per household in Rongai Sub County is 3.07 children. A further analysis of the number of children per household revealed that majority (23.5%) of the households have three children as shown in the table below

Number of children Per household	**Percentage**
One	14.7%
Two	24.7%
Three	23.5%
Four	18.3%
Five	13.9%

Six	4.4%
Seven	0.55

Table 3: Number of children per household

Analysis of association between stunting and number of children in an household revealed that there is an association between the number of children in an household and stunting (Cramer's V value >0). A further test of strength of association revealed that there is moderate association (Cramer's V value 0.103) between stunting and the number of children in an household.

Uptake of alcohol by the mother during pregnancy and stunting in children aged 6-59 months

This study sought to explore whether there is any association between uptake of alcohol during pregnancy and stunting in children aged 6-59 months. The findings indicated that 28.6% (24.10 - 33.10 95% CI) of the women had consistently consumed alcohol during their previous pregnancy with the youngest child. A further test of association between alcohol uptake during pregnancy and stunting revealed that there is weak association (phi value 0.003) between alcohol uptake during pregnancy and stunting in children under five years of age.

Exclusive breastfeeding and stunting in children aged 6-59 months

The study investigated whether mothers exclusively breastfed their youngest child. The findings revealed that 22.4% (18.25 - 26.55 95% CI) of the children were exclusively breastfed. A test of association showed that there is weak association (Phi value is 0.02) between exclusive breastfeeding and stunting in children under five years of age.

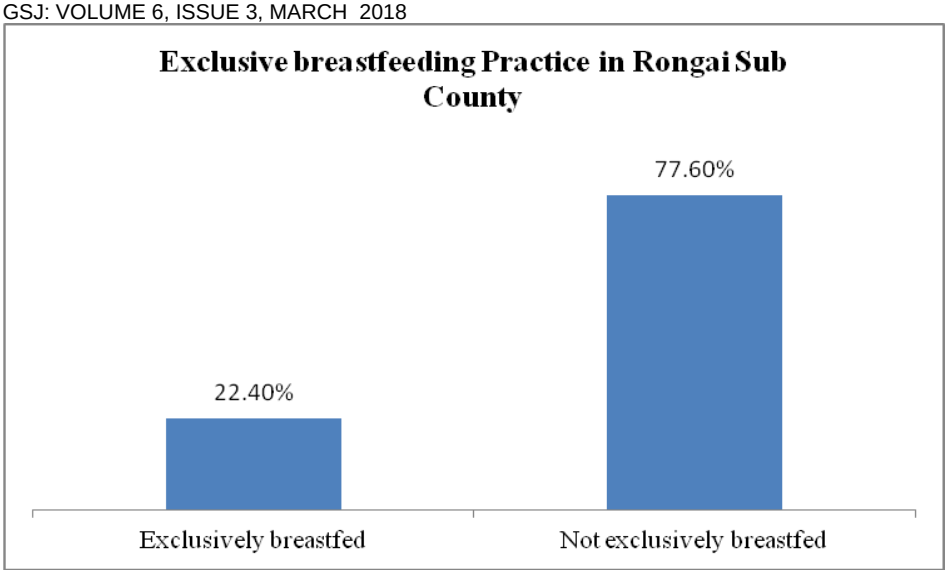

Figure 4: Practice of Exclusive Breast Feeding

Discussion

According to Branca and Ferrari (2002), chronic malnutrition is associated with child mortality and morbidity, reduced physical capacity, reduced economic productivity and school performance. Proximate factors that are associated with stunting are dietary intake and the health of the child. This research investigated the influence of socio demographic factors on stunting. Variables that were studied include; number of children in an household, household food security, alcohol uptake while pregnant and child feeding practices (breast feeding).

The findings from this study revealed that there is an association between stunting and household food security. These results are in agreement with findings by Mutisya, et al (2015) who noted that the risk of stunting increased in children from food secure households. Food insecurity results in lower uptake of energy dense foods and thus lead to a change in a child's health. A child should access adequate quantities of food to support his/her growth. A recent study by Naser et al (2014) revealed that food security is associated with stunting and underweight. Household food security is therefore a key determinant of the health status of children in an household.

A test of association between stunting and the number of children revealed that there is moderate association between stunting and number of children in an household. A household with many children is likely to experience challenges in ensuring that the nutritional needs of the children are adequately catered for. This also depends on economic status of an household since households that are considered rich may provide adequate food to all children in the household. Heady, Hodge (2009) noted a positive relationship between the number of siblings and a child's chance of being stunted. The more the children in an household, the more the likelihood of younger children being stunted.

The findings of this study revealed that there is an association between alcohol uptake during pregnancy and stunting. These results are in agreement with the findings by Sampson et al (1994) who noted that effects of prenatal alcohol exposure were noted on weight, length and head circumference at birth. Similar results were

noted by Jacobson et al. (2007) who noted that prenatal alcohol exposure was associated with reduced weight at birth, 6.5 months and 12 months and with shorter length at 6.5 and 12 months. Alcohol uptake during pregnancy impairs uptake of nutrients by the fetus and ultimately will put the child at a risk of stunting. Children whose mothers consumed alcohol during their pregnancy are more likely to be stunted. In their study on the effect of moderate alcohol consumption during pregnancy on fetal growth and morphogenesis, Hanson, Stressquth and Smith (1978) noted that alcohol uptake during early stages of pregnancy may interfere with fetal growth and thus malnutrition after birth.

A child should access adequate nutrition in the first two years of life. According to Victora, Adair, Fall, Martorell and Richter et al (2008), proper nutrition in the first two years is an important predictor of education and economic success in life. Breast feeding confers antibodies to the children that prevent them from infections such as diarrhea which are associated to malnutrition in under five children. Breast milk also nourishes the child through provision of important nutrients that are necessary for infant and child growth. WHO highly recommends exclusive breastfeeding for the first six months and appropriate complementary feeding as the best ways to prevent infant malnutrition. Lamberti (2011) argues that in developing countries, the lack of exclusive breastfeeding for six months and absence of breastfeeding for infants 6 to 23 months old is associated with higher risk of diarrheal infections and associated morbidity and mortality.

This study noted an association between exclusive breast feeding and stunting. A child who is exclusively breastfed has lower chance of stunting compared to a child who received complementary foods in the first six month after birth. This is attributed to the role played by breast milk during the first two years of a child. It provides immunity to a child thus preventing common childhood illnesses such as diarrhea and respiratory illnesses that are the leading causes of morbidity in under five children. Common childhood illnesses such as diarrhea predispose younger children to stunting. The findings from this study support promotion of optimal breastfeeding practices with proper focus on nutrition interventions.

Conclusion

Adequate nutrition is important for the growth and development of a child. Nutrition is an important determinant of health and general development of a society. A society whose children are malnourished is more likely to be poor and has high incidence of preventable diseases. Several factors have been identified as causes of malnutrition. Immediate causes include inadequate or inappropriate dietary intake, infectious disease and household characteristics. While these could be main causes of malnutrition, context specific factors contribute to malnutrition in various areas such as arid lands, highlands, urban and rural areas.

The purpose of this study was to identify social demographic factors influencing stunting in children aged 6-59 months in Rongai Sub County in Kenya. The study was informed by high stunting rates in the region and the need to identify factors that contribute to the high stunting rates. The findings indicated that number of children in an household, food security, alcohol uptake during pregnancy and exclusive breastfeeding influence stunting in children aged 6-59 months. It further revealed that association of these variables to stunting vary. Household food security will determine whether a child will access all the required nutrients at the required quantities while number of children in an household will also influence food adequacy and care practices by the caregiver. Children from large household sizes are susceptible to malnutrition depending on the economic status of the household. Alcohol uptake during pregnancy on the other hand affects fetal growth and development and health outcomes of the child in the first two years after delivery. Exclusive breastfeeding confers a child with antibodies that will protect him or her from preventable diseases that are indirect causes of stunting.

Research findings generated through this study will be used by policy makers to make appropriate decisions that will address stunting in children aged 6-59 months. Findings will also be used by the Ministry of Health staff to design interventions that will promote healthy development of children. This research will also inform research studies that will be conducted by researchers in Kenya and other parts of the

world.

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Appendices

Research Instrument for a survey on social demographic factors influencing stunting in children aged 6-59 months in Rongai Sub County Nakuru County.

Our names are Mark and Joel postgraduate students from Southern Adventist University. We are conducting a study on the social demographic factors influencing stunting in children aged 6-59 months in Rongai Sub County Nakuru County in Kenya.

The purpose of this study is to assess social demographic factors that influence stunting in children aged 6-59 months. This will enable the research team to identify these factors and enlighten the decision makers on factors that contribute to stunting in children aged 6-59 months.

You have been selected by chance from other women in the area to participate in this interview. The survey is voluntary and the information that you will give will be confidential. The information will be used to prepare reports but will not include any specific names. There will be no way to identify that you gave this information.

Kindly spare us twenty minutes for this interview

Thank you for participating in our survey. Your feedback is important.

Survey Instruments

This survey contains a questionnaire on socio demographic factors influencing stunting and interview guide. Thequestionnaire is administered to eligible caregivers of children aged 6-59 months and reside in the study area. It also contains anthropometric data sheet where weight, height and age measurements for each child aged 6-59 months will be entered. The interview guide will be administered to the County nutrition officer.

Basic information			**BI**
HBI01. Date of survey: _____/_____/_____ *(DD/MM/YYYY)*	**HBI02.** Name of data collector:		**HBI03.** Cluster/Location #: ❒ 1. Maji Tamu ❒ 2 Ruiyobei ❒ 3. Waseges ❒ 4. Mwiteithia ❒ 5. Ol manyatta ❒ 6. Lari
HBI04. Sub-Location: _____	**HBI05.** Sub-county:	**HBI06.** Village:	**HBI07.** HH #:

Demographic data			**DM**
How many people currently live (eat and sleep) in this household in each of the following age categories (including yourself)			
	Male	Female	
HDM01a: # children 0-5 months	_____	____	
HDM01b: # children 6-59 months	_____	____	
HDM01c: # children 6-11 years	_____	____	
HDM01d # children 12-18 years	_____	___	
	Male	Female	
HDM01e: # people 19-49 years	_____	_____	
HDM01f: # people 50 years & over	_____	_____	

Ask for and record the age and sex of household head and caregiver as follows

#		Sex	Age	
			Years	**Months**
HDM02a	HH head:			
HDM02b	Caregiver:			
HDM03.	What is the highest level of schooling you have completed? 0 = Never attended, 1 = Preschool, 2 = Primary/Basic, 3 = Secondary, 4 = Post Secondary, 88 = Don't know *If the respondent is also the household head, skip next question*			

Food Security

Food Supply						**FS**
FFS01.	Now I would like to ask you about your household's food supply during the different months of the year. When responding, please think back over the last 12 months. In the past 12 months, were there months in which you did not have enough food to meet your family's needs? Yes = 1 No = 0 *If no, skip to next section*					
FFS02.	*Working backwards from the current month, place a one in the box if the respondent identifies that months as one in which the household did not have enough food to meet their needs.* In which were the months (in the past 12 months) in which you did not have enough food to meet your family's needs? *Yes = 1 No = 0*					
	January		May		September	
	February		June		October	
	March		July		November	
	April		August		December	

Household Diet Diversity		**DD**
FDD01.	How many meals (including porridge or bread) did adults eat **yesterday** in your household? *(Respondent should clearly outline the actual meals)*	
FDD02.	How many meals (including porridge or bread) did the children eat **yesterday** in your household? **IF NO CHILDREN IN THE HH, WRITE 99.**	
FDD03.	Now I would like to ask you about the type of foods that the children in your household ate yesterday during the day and the night *Read the list of foods. Place a one in the box if anyone in the household ate the food in question. Place a zero in the box if no one in the household at the food. Place 88 in the box if the respondent does not know.*	Yes = 1 No = 0 DK = 88
	a) Any ugali, bread, rice, or any other foods made from millet, sorghum, maize, rice or wheat?	a.
	b) Any potatoes, cassava or sweet potatoes?	b.
	c) Any vegetables?	c.
	d) Any fruits?	d.
	e) Any beef, pork, lamb goat, rabbit, chicken, liver, kidney or other organ meats?	e.
	f) Any eggs?	f.
	g) Any fresh or dried fish?	g.
	h) Any food made from beans, peas or nuts?	h.
	i) Any milk or other milk product?	i.

	j) Any foods made with oil, fat or butter?	j.
	k) Any sugar or honey?	k.
	l) Any other foods such as coffee or tea?	l.

Ante and Post Natal care		
This section is about experiences during the most recent pregnancy. This questions should be administered to a caregiver with a child who is below two years of age		
WNU01.	When you were pregnant with (NAME), did you eat 1 = Less amount than when not pregnant 2 = Same amount 3 = 1 meal more per day 4 = 2 meals more per day than when you were not pregnant?	
WNU02.	During your last pregnancy, did you **receive** any iron/folate supplements for strengthening your blood? 1 = Yes 0 = No (if 'no', skip to next section) 88 = Don't know/No response (if 'don't know/no response', skip to next section)	
WNU03.	During your last pregnancy, did you **take** any iron/folate supplements like this (show example)? 1 = Yes 0 = No 88 = Don't know/No response	
WNU04.	During this last pregnancy did you take any alcohol? 1 = Yes 0 = No 88 = Don't know/No response	
WNU05.	Did you take any alcohol after delivery of (name)? 1 = Yes 0 = No 88 = Don't know/No response	
WNU06.	If yes, for how long did you take alcohol after the birth of (name) 1 = <6 months 2 = 6 - 12 months 3 = 12 - 24 months 4 = 24 - 59 months 5 = Others (Specify) _____	
WNU07	Do you currently drink? 1 = Yes 0 = No 88 = Don't know/No response	

Child feeding practices

SNU01.	Has (NAME) ever been breastfed? 1 = Yes 0 = No (if 'no' skip to question SNU05)	
SNU02.	Since yesterday, including during the day and night, did (name) receive breast milk? 1 = Yes (if 'yes', skip to SNU05) 0 = No 88 = Don't Know/No response	
SNU03.	Is (name) still receiving breast milk? 1 = Yes (if 'yes', skip to SNU05) 0 = No 88 = Don't Know/No response (if 'don't know/no response', skip to SNU05)	
SNU04.	How old was (name) when he or she stopped taking breast milk? *Record number of months. If respondent doesn't know, write 888*	Months _____
The next few questions are about any meals or snacks that (name) may have had yesterday, during the day or night.		
SNU05.	Did (name) eat any solid, semi-solid or soft foods yesterday, during the day or night? 1 = Yes 0 = No (if 'no', skip to SNU10) 88 = Don't Know/remember (if 'don't know/remember', skip to SNU10)	
SNU06.	How many times did (name) have a meal yesterday, during the day or night? *1 = Once* *2 = Twice* *3 = Thrice* *4 = More than thrice* *88 = Do not know/ No response*	
SNU07.	How many times did (NAME) drink milk, such as tinned, powdered or fresh animal milk yesterday during the day or night? *1 = Once* *2 = Twice* *3 = Thrice* *4 = More than thrice* *88 = Do not know/ No response*	
SNU08.	Since this time yesterday (during the day or the night), did (NAME) eat any grains, sweet potatoes, or cereals, including porridge, ugali, rice, potatoes, etc? 1 = Yes 0 = No 88 = Don't Know/ remember	

SNU09.	Since this time yesterday (during the day or night) did (NAME) eat any orange or yellow colored fruits or vegetables for example, carrots, orange sweet potatoes, mango? 1 = Yes 0 = No 88 = Don't Know/ remember	
SNU10.	Since this time yesterday (during the day or night) did (NAME) eat any other fruits or vegetables? 1 = Yes 0 = No 88 = Don't Know/ remember	
SNU11.	Since this time yesterday (during the day or night) did (NAME) eat any meats, fish or poultry? 1 = Yes 0 = No 88 = Don't Know/ remember	
SNU12.	Since this time yesterday (during the day or night) did (NAME) eat any eggs? 1 = Yes 0 = No 88 = Don't Know/ remember	
SNU13.	Since this time yesterday (during the day or night) did (NAME) eat any beans, peas, or any other legume? 1 = Yes 0 = No 88 = Don't Know/ remember	
SNU14.	Have you ever taken (NAME) to Growth Monitoring and promotion sessions? 1 = Yes 0 = No (if 'no', skip to next section) 88 = Don't Know/No response (if 'don't know/no response', skip to next section)	

Anthropometry		**AP**
AAP01.	Is (name) a boy or a girl? 1 = Boy 2 = Girl	
AAP02.	What is (name's) date of birth? *Write date in format: DD/MM/YYYY*	
AAP03.	What is (name's) weight in kilograms? *Record weight to the nearest 0.01 kg*.	

AAP04.	FOR CHILDREN 0-23 months old, how many centimetres long is (name) when he/she is lying down? *Measure length when lying down. Record length to the nearest 0.1 cm. If child is older than 23 months, leave blank.*	
AAP05.	FOR CHILDREN 24-59 months old, how many centimeters tall is (name) when he/ she is standing up? *Measure height when standing up. Record height to the nearest 0.1 cm. If child is younger than 24 months, leave blank.*	

Use the table below to fill data anthropometric measurements for children 6-59 months

Cluster /Village No: _____ Village Name _____ Sub-Location:_____ Date _____ Team number:

Child no.	HH. no.	Name (optional)	Sex (f/m)	Birthday MM/D/Yr	Weight (kg) ±100g	Height (cm) ±0.1cm	Oedema (y/n)	MUAC (cm)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

Thank for your time and the responses and information you have provided.

Definition of Terms

Definition of terms is not necessary because all terms are common to the respondents.

FORM A

RESEARCH APPROVAL

Research Request: _____Exempt _____Expedited _____Full Review _____Other (Animal/Plant)

This box is for SAU – IRB Office Use Only

IRB Tracking #_____

Date Received _____ _____Exempt _____Expedite _____Full Review _____Other (Animal/Plant)

1) IRB Board Approver _____ _____ _____
Name Title Date

2) IRB Board Approver _____ _____ _____
Name Title Date

Date Approval Sent_____

Title of Research Project: Socio demographic factors influencing stunting in children aged 6-59 months in Rongai Sub County Kenya

Principal Investigator: Mark Mutai	E-mail Address: markmutai@southern.edu
	Phone #: +254722 485 133
Co-Investigator: Atuti Nyambane Joel	E-mail Address: atutinyambane@southern.edu
	Phone # + 254725 737 290
Co-Investigator:	E-mail Address:
	Phone #:
Co-Investigator	E-mail Address:
	Phone #:
Department: Global Community Development	Faculty Supervisor: Dr. Sarone Ole Sena
Starting Date: 8th August 2016	Estimated Completion Date: 16th September 2016
Cooperating Institutions: Is this research being done with any institutions, individuals or organizations not affiliated with SAU? If yes, please provide the names and contact information of authorized officials below.	
Name of Institution	Address:
Contact Name:	Phone #:
Contact E-mail:	
External Funding Agency: None	Identification # (if applicable) N/A
Grant Submission Deadline (if any) N/A	

Please attach all of the following items, making sure the entire application is completely filled out (where applicable) before submitting the application:

- Any research instruments (tests, surveys, questionnaires, protocols, or any form else used to collect data)
- All informed consent documents
- Permission from applicable authorities (principals of schools, teachers of classrooms, etc.) to conduct your research at their facilities on their School Letterhead.
- Students need signatures from their faculty advisor.

All student applications must be signed by the faculty advisor then scanned and submitted electronically, or submitted directly by the faculty advisor. All applications should be submitted by email to irb@southern.edu.

Please be aware you cannot begin your research until it has been officially approved by the IRB.

Type of Research- Check all areas that apply

____ Dissertation/Thesis

____ Funded Faculty Research

____ General Faculty Research

____ Applying for ARC Funding

_√_ Student Research

____ Other: Animal/Plant

Background and Rationale for the Study:

Child malnutrition remains a serious problem affecting rural communities in Kenya. Results from Kenya demographic and health survey (2014) indicate that 26% of the children under five years of age stunted, 4% are wasted and 11% underweight. The situation is much worse in rural remote areas where access to food and health services is low. Adequate nutrition is important for the growth and development of the child. The period between birth and 2 years is of utmost importance for the physical, mental and cognitive development of the child. A child at this period is often affected by nutrient deficiencies that interfere with optimal growth and development.

Causes of malnutrition need to be investigated and appropriate strategies put in place to prevent malnutrition. This study therefore seeks to investigate socio demographic factors influencing stunting in children aged 6-59 months. The results will be disseminated to the policy makers for decision making as they design programmes that will address the causes of malnutrition.

Purpose/Objectives of the Research:

The purpose of this study is to assess the socio demographic factors influencing stunting in Rongai Sub County Kenya. The research team intend to answer the research question; What is the relationship between social demographic factors and stunting in children aged 6-59 months?. The following research hypothesis will be tested during the study; Alternate hypothesis

Social demographic factors influences nutrition status of children

Null hypothesis

Social demographic factors do not influence nutrition status of children

Methods and/or Procedures**:**

This research will adopt a descriptive study design. Quantitative research methodologies will be used during this study. A structured interviewer administered questionnaire will be used to collect data. Research participants for the study will be randomly selected to ensure equal representation of the study population. Anthropometric measurements of weight, height and age will be done using height meters and weighing scales. Names of the research participants will not be indicated in the research instruments. Data generated will be analyzed and findings interpreted to seek answers to the research question and test the hypothesis.

Description of Research Sample: If human subjects are involved, please check all that apply:
__√__ Minors (**if minors are involved please attach a Childs Assent Form**)
____ Prison Inmates
____ Mentally Impaired
____ Physically Disabled
____ Institutionalized Residents
____ Anyone unable to make informed decisions about participation
____ Vulnerable or at-risk groups, e.g. poverty, pregnant women, substance abuse population
____ Health Care Data Information - be **sure to attach any necessary HIPAA forms if this line is checked**
____ Other: Animals or plants will be used
__√__ Other: please describe: Caregivers of children aged 6-59 months

Approximate Number of Subjects: __386___

Participant Recruitment:
Describe how participant recruitment will be performed. Include how potential participants are introduced to the study (Please check all that apply)

SAU Directory:	Postings, Flyers	Radio, TV
E-Mail Solicitation	How Were Addresses Obtained	
Web-based Solicitation	Indicate Site	Indicate Site
Participant Pool	What Pool	
Other, Please Specify: The participants will be randomly identified by the research assistants at household level.		
Attach Any Recruiting Materials You Plan to Use and the Text of E-mail or Web-based Solicitations You Will Use		

Content Sensitivity:
Does your research address culturally or morally sensitive issues? ____Yes √ No If yes, please describe.

Privacy and Confidentiality:
Efforts will be made to keep personal information confidential. We cannot guarantee absolute confidentiality. Personal information may be disclosed if required by law. Identities will be held in confidence in reports in which the study may be published and databases in which results may be stored.

Will personal identifiers be collected? ____ Yes __√__ No
Will identifiers be translated to a code? ____ Yes ____ No
Will recordings be made (audio, video) ____ Yes __√__ No If yes, please describe.

Is Funding being sought to support this research? ____No_____

Circle to indicate if the funding is: Internal or External Funding? Is there a funding risk? _____

Who will keep the financial records? _____

Who will have access to data (survey, questionnaires, recordings, interview records, etc.)? Please list below.

Data will only be accessible to the investigators (Mark and Atuti) and the supervisor (Dr. Sarone)

Participant Compensation and Costs
Are participants to be compensated for the study? ____ Yes _√___ No
If yes, what is the amount, type and source of funds:
Amount $_____ Type:_____ Source _____

Will participants who are students be offered class credit? ____ Yes ____ No _√__ NA
Are other inducements planned to recruit participants? ____ Yes _√____ No If yes, please describe
Are there any costs to participants? ____ Yes __√__ No If yes, please explain _____

Other: Animals/Plants

Are the animals/plants being studied on the endangered list? _____No_____

Are Scientific Collection Permits required, i.e. Tennessee Wildlife Resources Agency? _____

Have the animal(s) utilized in this study already been used in a previous study (non-naïve animals)? _____

Will the animal(s) used in this study be used in a future study? _____

Where will the animals be housed? _____

Will the rodents (if applicable) be housed in wire bottom cages? _____

Will plants be used for instructional purposes as part of teaching a course? _____

Are there any risks involved with this study? _____Yes __√____No

Are there any potential damage or adverse consequences to researcher, participants, or environment? These might include physical, psychological, social, or spiritual risks whether as part of the protocol or a remote possibility. Please indicate all that apply.

____ **Physical Risk:** May include pain injury, and impairment of a sense such as touch or sight. These risks may be brief or extended, temporary or permanent, occur during participation in the research or arise after.

____ **Psychological Risk:** Can include anxiety, sadness, regret and emotional distress, among others. Psychological risks exist in many different types of research in addition to behavioral studies.

__√__ **Social Risk:** Can exist whenever there is the possibility that participating in research or the revelation of data collected by investigators in the course of the research, if disclosed to individuals or entities outside of the research, could negatively impact others' perceptions of the participant. Social risks can range from jeopardizing the individual's reputation and social standing, to placing the individual at-risk of political or social reprisals.

____ **Legal Risk:** Include the exposure of activities of a research subject "that could reasonable place the subjects at risk of criminal or civil liability".

____ **Economic Risk:** May exist if knowledge of one's participation in research, for example, could make it difficult for a research participant to retain a job or find a job, or if insurance premiums increase or loss of insurance is a result of the disclosure of research data.

____ **Spiritual Risk:** May exist if knowledge of one's spiritual beliefs or lack of, could be exposed which in turn could invoke an economic, social and or psychological risk.

Risks: In your opinion, do benefits outweigh risks? __√__ Yes ____ No

Results:

The results will be disseminated as:

____√__Classwork only _____Student conference _____ Professional conference

__√____Published article _____Other If other, please specify: _____

Signatures: If submitted by a faculty member, electronic (typed) signatures are acceptable. If submitted by a student, please print out completed form, obtain the faculty advisor's signature, scan completed form, and submit it via e-mail. Only Word documents or PDF files are acceptable submissions.

Atuti Nyambane and Mark Mutai

Principal Investigator (PI) or Student **Date**

_____ _____

Faculty Advisor (for student applications) **Date**

All student applications must be signed by the faculty advisor then scanned and submitted electronically, or submitted directly by the faculty advisor. All applications should be submitted by email to: irb@southern.edu

Additional Special Requirements or Attachments to the Application

Approvals from other IRBs
Cooperative research projects involve research that involves more than one institution. In these instances, federal law holds each institution responsible for safeguarding the rights and welfare of human subjects and for complying with federal policy; therefore, SAU IRB applications must be made even if there is another institution conducting a review of the same research project. When a study is being carried out at a non-USA site, and approval from other institutional review boards at the foreign site must be sought. The IRB recommends that a copy of each IRB approval be submitted.

Questionnaires/Other Instruments

Research Instrument for a survey on social demographic factors influencing stunting in children aged 6-59 months in Rongai Sub County of Nakuru County.

Our names are Mark and Joel postgraduate students from Southern Adventist University. We are conducting a study on the social demographic factors influencing stunting in children aged 6-59 months in Rongai Sub County

The purpose of this study is to assess social demographic factors that influence stunting in children aged 6-59 months. This will enable the research team to identify these factors and enlighten the decision makers on factors that contribute to stunting in children aged 6-59 months.

You have been selected by chance from other women in the area to participate in this interview. The survey is voluntary and the information that you will give will be confidential. The information will be used to prepare reports but will not include any specific names. There will be no way to identify that you gave this information.

Kindly spare us twenty minutes for this interview

Thank you for participating in our survey. Your feedback is important.

Survey Instruments

This survey contains a questionnaire on socio demographic factors influencing stunting and interview guide. Thequestionnaire is administered to eligible caregivers of children aged 6-59 months and reside in the study area. It also contains anthropometric data sheet where weight, height and age measurements for each child aged 6-59 months will be entered. The interview guide will be administered to the County nutrition officer.

Basic information			**BI**
HBI08. Date of survey: _____/_____/_____ *(DD/MM/YYYY)*	**HBI09.** Name of data collector:		**HBI10.** Cluster/Location #: ❒ 1. Maji Tamu ❒ 2 Ruiyobei ❒ 3. Waseges ❒ 4. Mwiteithia ❒ 5. Ol manyatta ❒ 6. Lari
HBI11. Sub-Location: _____	**HBI12.** Sub-county:	**HBI13.** Village:	**HBI14.** HH #:

Demographic data				**DM**
How many people currently live (eat and sleep) in this household in each of the following age categories (including yourself)				
	Male	Female		Male Female
HDM01a: # children 0-5 months	_____	____	HDM01e: # people 19-49 years	_____ _____
HDM01b: # children 6-59 months	_____	____	HDM01f: # people 50 years & over	_____ _____
HDM01c: # children 6-11 years	_____	____		
HDM01d # children 12-18 years	_____	___		
HDM02.	Are you the household head, as well as the caregiver? Yes = 1 No = 0			
Ask for and record the age and sex of household head and caregiver as follows				
#		**Sex**	**Age**	
			Years	**Months**
HDM02a	HH head:			
HDM02b	Caregiver:			
HDM03.	Which ethnicity is the household head? 1 = (Kikuyu) 2 = (Kalenjin) 3 = (Turkana) 4 = (Luhya) 5 = (Maasai) Other (specify): _____			

HDM04.	What is the highest level of schooling you have completed? 0 = Never attended, 1 = Preschool, 2 = Primary/Basic, 3 = Secondary, 4 = Post Secondary, 88 = Don't know *If the respondent is also the household head, skip next question*	
HDM05.	What is the highest level of schooling the head of the household has completed? 0 = Never attended, 1=Preschool, 2 = Primary/Basic, 3 = Secondary, 4 = Post Secondary, 88 = Don't know	

Food Security

Food Supply						**FS**
FFS03.	Now I would like to ask you about your household's food supply during the different months of the year. When responding, please think back over the last 12 months. In the past 12 months, were there months in which you did not have enough food to meet your family's needs? Yes = 1 No = 0 *If no, skip to next section*					
FFS04.	*Working backwards from the current month, place a one in the box if the respondent identifies that months as one in which the household did not have enough food to meet their needs.* In which were the months (in the past 12 months) in which you did not have enough food to meet your family's needs? *Yes = 1 No = 0*					
	January		May		September	
	February		June		October	
	March		July		November	
	April		August		December	

Household Diet Diversity		**DD**
FDD01.	How many meals (including porridge or bread) did adults eat **yesterday** in your household? *(Respondent should clearly outline the actual meals)*	
FDD02.	How many meals (including porridge or bread) did the children eat **yesterday** in your household? **IF NO CHILDREN IN THE HH, WRITE 99.**	
FDD03.	Now I would like to ask you about the type of foods that the children in your household ate yesterday during the day and the night *Read the list of foods. Place a one in the box if anyone in the household ate the food in question. Place a zero in the box if no one in the household at the food. Place 88 in the box if the respondent does not know.*	Yes = 1 No = 0 DK = 88

	a) Any ugali, bread, rice, or any other foods made from millet, sorghum, maize, rice or wheat?	a.
	b) Any potatoes, cassava or sweet potatoes?	b.
	c) Any vegetables?	c.
	d) Any fruits?	d.
	e) Any beef, pork, lamb goat, rabbit, chicken, liver, kidney or other organ meats?	e.
	f) Any eggs?	f.
	g) Any fresh or dried fish?	g.
	h) Any food made from beans, peas or nuts?	h.
	i) Any milk or other milk product?	i.
	j) Any foods made with oil, fat or butter?	j.
	k) Any sugar or honey?	k.
	l) Any other foods such as coffee or tea?	l.

Household Hunger Scale		**HH**
FHH01.	In the past four weeks was there ever no food to eat of any kind in your household because of lack of resources to get food? Yes = 1 No = 0(*If no skip next question)*	
FHH02.	How often did this happen? 1 = rarely (about once or twice a month) 2 = sometimes (about once a week) 3 = often (about twice a week or more)	
FHH03.	In the past four weeks, did any child go to sleep at night hungry because there was not enough food? Yes = 1 No = 0(*If no skip next question)*	
FHH04.	How often did this happen? 1 = rarely (about once or twice a month) 2 = sometimes (about once a week) 3 = often (about twice a week or more)	
FHH05.	In the past four weeks, did any child go a whole day and night without eating anything because there was not enough food? Yes = 1 No = 0(*If no skip next question)*	
FHH06.	How often did this happen? 1 = rarely (about once or twice a month) 2 = sometimes (about once a week) 3 = often (about twice a week or more)	

Coping Strategies						**CS**
FCS01.	In the past 30 days, how frequently did your household resort to one or more of the following strategies in order to access food? **CIRCLE ONE FREQUENCY FOR EACH COPING STRATEGY IN THIS LIST**					
		Never	Seldom (<1 day a week)	Once in a while (1-2 days a week)	Pretty often (3-6 days/week)	Almost every day
	a) Limit portion size at mealtimes?	1	2	3	4	5
	b) Reduce number of meals eaten per day?	1	2	3	4	5
	c) Skip entire days without eating?	1	2	3	4	5
	d) Borrow food or rely from help from a friend or relative?	1	2	3	4	5
	e) Rely on less expensive or less preferred foods?	1	2	3	4	5
	f) Purchase food on credit, or tae a loan to purchase food?	1	2	3	4	5
	g) Gather unusual types/amounts of wild food or hunt?	1	2	3	4	5
	h) Harvest immature crops (e.g. green mealies)? *If not applicable circle here* **N/A**	1	2	3	4	5
	i) Send household members to eat elsewhere?	1	2	3	4	5
	j) Send household member to beg?	1	2	3	4	5
	k) Restrict consumption by adults so children can eat more?	1	2	3	4	5
	l) Rely on casual labour for food?	1	2	3	4	5
	a) Avoid spending on healthcare in order to buy food?	**Yes** 2		**No** 1		**N/A** 0
	b) Reduce expenditure on education/withdrew child/children from school in order to buy food?	2		1		0
	c) Reduce expenditure on agricultural livestock input to buy food?	2		1		0

Ante and Post Natal care		
This section is about experiences during the most recent pregnancy. This questions should be administered to a caregiver with a child who is below two years of age		
WNU01.	When you were pregnant with (NAME), did you eat 1 = Less amount than when not pregnant 2 = Same amount 3 = 1 meal more per day 4 = 2 meals more per day than when you were not pregnant?	
WNU02.	During your last pregnancy, did you **receive** any iron/folate supplements for strengthening your blood? 1 = Yes 0 = No (if 'no', skip to next section) 88 = Don't know/No response (if 'don't know/no response', skip to next section)	
WNU03.	During your last pregnancy, did you **take** any iron/folate supplements like this (show example)? 1 = Yes 0 = No 88 = Don't know/No response	
WNU04.	During this last pregnancy did you take any alcohol? 1 = Yes 0 = No 88 = Don't know/No response	
WNU05.	Did you take any alcohol after delivery of (name)? 1 = Yes 0 = No 88 = Don't know/No response	
WNU06.	If yes, for how long did you take alcohol after the birth of (name) 1 = <6 months 2 = 6 - 12 months 3 = 12 - 24 months 4 = 24 - 59 months 5 = Others (Specify) _____	
WNU07	Do you currently drink? 1 = Yes 0 = No 88 = Don't know/No response	

Child feeding practices		
SNU01.	Has (NAME) ever been breastfed? 1 = Yes 0 = No (if 'no' skip to question SNU05)	

SNU02.	Since yesterday, including during the day and night, did (name) receive breast milk? 1 = Yes (if 'yes', skip to SNU05) 0 = No 88 = Don't Know/No response	
SNU03.	Is (name) still receiving breast milk? 1 = Yes (if 'yes', skip to SNU05) 0 = No 88 = Don't Know/No response (if 'don't know/no response', skip to SNU05)	
SNU04.	How old was (name) when he or she stopped taking breast milk? *Record number of months. If respondent doesn't know, write 888*	Months _____
The next few questions are about any meals or snacks that (name) may have had yesterday, during the day or night.		
SNU05.	Did (name) eat any solid, semi-solid or soft foods yesterday, during the day or night? 1 = Yes 0 = No (if 'no', skip to SNU10) 88 = Don't Know/remember (if 'don't know/remember', skip to SNU10)	
SNU06.	How many times did (name) have a meal yesterday, during the day or night? *1 = Once* *2 = Twice* *3 = Thrice* *4 = More than thrice* *88 = Do not know/ No response*	
SNU07.	How many times did (NAME) drink milk, such as tinned, powdered or fresh animal milk yesterday during the day or night? *1 = Once* *2 = Twice* *3 = Thrice* *4 = More than thrice* *88 = Do not know/ No response*	
SNU08.	Since this time yesterday (during the day or the night), did (NAME) eat any grains, sweet potatoes, or cereals, including porridge, ugali, rice, potatoes, etc? 1 = Yes 0 = No 88 = Don't Know/ remember	
SNU09.	Since this time yesterday (during the day or night) did (NAME) eat any orange or yellow colored fruits or vegetables for example, carrots, orange sweet potatoes, mango? 1 = Yes 0 = No 88 = Don't Know/ remember	

SNU10.	Since this time yesterday (during the day or night) did (NAME) eat any other fruits or vegetables? 1 = Yes 0 = No 88 = Don't Know/ remember	
SNU11.	Since this time yesterday (during the day or night) did (NAME) eat any meats, fish or poultry? 1 = Yes 0 = No 88 = Don't Know/ remember	
SNU12.	Since this time yesterday (during the day or night) did (NAME) eat any eggs? 1 = Yes 0 = No 88 = Don't Know/ remember	
SNU13.	Since this time yesterday (during the day or night) did (NAME) eat any beans, peas, or any other legume? 1 = Yes 0 = No 88 = Don't Know/ remember	
SNU14.	Have you ever taken (NAME) to Growth Monitoring and promotion sessions? 1 = Yes 0 = No (if 'no', skip to next section) 88 = Don't Know/No response (if 'don't know/no response', skip to next section)	

Anthropometry		**AP**
AAP01.	Is (name) a boy or a girl? 1 = Boy 2 = Girl	
AAP02.	What is (name's) date of birth? *Write date in format: DD/MM/YYYY*	
AAP03.	What is (name's) weight in kilograms? *Record weight to the nearest 0.01 kg*.	
AAP04.	FOR CHILDREN 0-23 months old, how many centimetres long is (name) when he/she is lying down? *Measure length when lying down. Record length to the nearest 0.1 cm. If child is older than 23 months, leave blank.*	
AAP05.	FOR CHILDREN 24-59 months old, how many centimeters tall is (name) when he/ she is standing up? *Measure height when standing up. Record height to the nearest 0.1 cm. If child is younger than 24 months, leave blank.*	

Use the table below to fill data anthropometric measurements for children 6-59 months

Cluster /Village No: _____ Village Name _____ Sub-Location:_____ Date _____ Team number:

Child no.	HH. no.	Name (optional)	Sex (f/ m)	Birthday MM/D/ Yr	Weight (kg) ±100g	Height (cm) ±0.1cm	Oedema (y/n)	MUAC (cm)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

Thank for your time and the responses and information you have provided.

Advertisements/Notices/Recruitment Flyers

The text of any advertisement, video display, notice, sign, brochure or flyer used to recruit subjects either

should be included as an attachment.

Not Application

PARENT OR GUARDIAN INFORMED CONSENT FOR CHILD PARTICIPATION IN THE STUDY

Greetings

We would like to inform you that your child has been selected at random to participate in a survey by Mark Mutai and Joel Atuti who currently conducting a study on influence of social demographic factors on stunting in children aged 6-59 months in Rongai Sub County. Mark and Joel are students at Southern Adventist University USA. This form has been given to you so you can find out more about this survey and, if you wish, agree for your child to participate.

The survey is about measurement of weight, height and age and thereafter computation of the nutrition status of the child. This will be compared to the social and demographic factors and conclusion made on whether there is a relationship between various social demographic variables and stunting in children aged 6-59 months.

This survey will help the Ministry of Health and other partners to better understand what contributes to stunting in children aged 6-59 months and put in place strategies to promote proper nutrition. The information will be used to present a general picture of the nutrition status of the children in the community, sub county and the country, but not about individual children. The information collected in this survey from your child will be kept confidential – no names or personal details which could identify your child will be used.

Before we can begin, we would like to seek your agreement to include your child in the survey. If you would like more information before agreeing, please contact Joel Atuti or Mark Mutai (below) who will be happy to assist.

Name: Joel Atuti Phone number: +254 725 737 290

Name: Mark Mutai Phone number: +254 722 485 133

Before providing your consent, I would like to remind you that:

1. Your child's participation in this survey is entirely voluntary, it is your choice whether your child

participates or not.

2. The information shared by your child will be kept confidential.

To help ensure confidentiality, we will not write your name or your child's name on the survey, nor write down particular details that would allow you or your child to be identified.

Do you give your consent to your child participating in this survey?

Yes ____

No ____

By saying yes, that means that you have read this consent form or it has been read to you. You agree voluntarily to your child participating in this survey and you understand that your child has the right to end the survey at any time.

I have read the information on the information sheet, or it has been read to me. I have had the opportunity to ask questions related to the survey and any questions I have asked have been answered to my satisfaction. I consent voluntarily that my child participates in this study and understand that my child has the right to end the interview at any time.

Signature of parent/caregiver _____ Date _____

IRB Approval Letter

SOUTHERN ADVENTIST UNIVERSITY
Power for Mind & Soul

IRB
Institutional Review Board

September 12, 2016
Principal Investigator: Mark Mutai and Atuti Nyambane
Research Project: Socio demographic factors influencing stunting in children aged 6-59 months in Rongai Sub County Kenya
IRB Tracking Number: 2016-2017-025
Dear Mark and Atuti,
It is a delight to inform you that the Institutional Review Board examined your research study proposal and supporting documents at the IRB committee and has approved your research request as **expedited.** We wish you the very best as you move forward with this study and look forward with this study and look forward to reading your findings when they are ready.
If there are minor changes to this research, before making those changes please notify us by completing and submitting FORM B (Certification of Modification, Annual Review, Research Termination, or Research Completion). Please submit applications to irb@southern.edu. If substantial changes are planned you, as the principal investigator, should submit a new IRB FORM A application.
Many blessing to you as you move forward. Please let us know if there is anything else we can do to assist you with this research study.

Always in His service,

Cynthia
Cynthia Gettys, Ph.D.
IRB Chair
Southern Adventist University
423-236-2285
cgettys@southern.edu
"I applied my mind to **study** and to explore by wisdom all that is done under the heavens…" - Ecclesiastes 2:13
"Research is to see what everyone else has seen and to think what nobody else has through." - Albert Szent-Gyorgyi