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Examination of food accessibility dimensions of household farms in the central region, Ghana

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Abstract
The study aimed at examining the food accessibility dimensions of male and female farm household farms in the Central Region of Ghana. A descriptive survey design was used in this study. A structured interview guide was used to collect data from four hundred and twenty (420) resident farmers from selected districts using a simple random sampling technique. Statistical Package for Service Solution (SPSS) version 20 was used to analyze the quantitative data. The results show that about (73%) of male and female household farms eat limited food due to lack of resources while some could not afford a three square meals a day.

Keywords: Food insecurity, food accessibility, household farms, central region, Ghana

Introduction

Food is the fundamental need and need of life that should be fulfilled before some other formative issue. Deficient sustenance is considered as proportion of neediness in numerous social orders or equivalent to destitution (Datt *et al*., 2000) [10]. Helen (2002) [16] noted that, food security keeps up with political solidness, and guarantees serene conjunction among individuals while food instability brings about chronic weakness and diminished execution of the children and grown-up. Food security is hence characterized "as a circumstance when all individuals, consistently, have physical and financial admittance to adequate, protected and nutritious food to meet their dietary necessities and food inclinations for a sound and dynamic life" (FAO, 1996). Incidentally, farming households are the most influenced as far as food insecurity and neediness in Africa particularly the small farming household, however the remainder of the populace relies upon their production. As indicated by Cruz (2010) [9] and Valdés *et al*., (2010) [29], greater part (more than 80%) of the smallholder ranchers on the planet are food unreliable and rely upon land as their essential wellspring of livelihoods. Three out of each four needy individuals leave in rustic regions and rely upon farming either straightforwardly or by implication for their work (World Bank, 2008).

In most part of the world and particularly, in the agricultural nations, concerns in regard to food security and its connected issues are fundamental for destitution decrease. Accomplishment of food security is center issue going up against cultivating families, particularly women and farming communities because of low efficiency in staple crop production, occasional changeability in food supply just as value vacillations. These issues confronting household farms occur because of over dependent on rainfall farming activities, none or unseemly utilization of synthetic contributions just as deficient further developed assortments of harvests and animal species. Food security of cultivating families is of genuine concern assuming Ghana needs to combine her macroeconomic additions since; ranchers who are powerless against food and nourishing uncertainty have restricted ability to react to horticultural projects.

Regardless of the way that Ghana made critical accomplishment towards meeting the millennium development objective one by dividing destitution from roughly 51.7 percent in 1991-1992, to 28.5 percent in 2005-2006 (Ghana Statistical Service, 2008) the abstrusity of neediness has exacerbated and spread into metropolitan regions (WFP, 2009) [32]. Household farms were perceived as generally influenced by destitution among every one of the financial exercises with practically 50% of them (46%) falling beneath the neediness line (WFP, 2009) [32]. As indicated by the insights of World Food Program (2009), about 1.2 million individuals, addressing 5% of the number of inhabitants in Ghana are food uncertain and 2 million individuals are helpless to become food unreliable in an event of any natural or man-made shock.

Food security is a multidimensional concept that mirrors a perplexing cooperation of numerous concerns (Misselhorn 2005; Altman *et al*. 2009). Outlining food security as a necessary part or a result of an occupation procedure perceives that a large group of stresses can interconnect to influence food security at a family or individual level. Family level grant on food security frequently draws on

livelihood approaches. Indeed, some characterize food security as the achievement of local livelihoods in ensuring access to adequate food at the family level (Devereux and Maxwell 2001) [11]. The focal point of family level food security research is to study the methodologies utilized by individuals to accomplish food security, regardless of whether it be migration (Karamba *et al*. 2011) [18], income diversification (Babatunde and Qaim 2010) [3], or the utilization of technology (Burney and Naylor 2012) [6], for instance. Food security can be viewed as one element of a more extensive livelihood procedure (Maxwell and Smith 1992) [21]. So, food security scholarship has advanced from a comprehension of food security established in issues of world and local food supply, to issues of family and individual food security that focuses on access (Sen 1981) [26], supportability (Scoones 1998) [25], and vulnerability to food insecurity (Chambers and Conway 1991; Watts and Bohle 1993) [7, 30].

The concept of food security can be explained in a broader context. It includes more than the measure of food accessible or available. The Food and Agribusiness Association (FAO) characterizes food security as "a circumstance that exists when all individuals, consistently, have physical, social and access to adequate, protected and nutritious food that meets their dietary necessities and food choices for a functioning, sound and active life" (World Food Summit 1996). While food security is usually characterized as a dichotomy, it can shift by degree, over the long run, from one family to another, or among networks. The conceptualization of food security mirrors a development in the field. During the 1970s, food security was viewed as to a great extent a component of food production, as clear on the World Food Conference in 1974 (Anderson and Cook 1999; Maxwell 1996; Baro and Deubel 2006) [2, 4, 22]. Sen (1981) [26] is generally credited for presenting the ideas of qualifications and access to food security grant. The regular meaning of food security lays on three foundations: food availability, food access, and food use (Webb *et al*. 2006; Ericksen *et al*. 2011). The study aimed at examining the food accessibility dimensions of male and female farm households in the Central Region of Ghana.

Research approach and methods

A research design is an analytical, excellently-organized procedure used to achieve the research objectives by a researcher or a scientist. This is a systematic cooperation of items already known, and every other related data that contributes to a fair end result according to Bryman (2012) [5]. The study employed the cross section descriptive survey design to collect of information from farmers.

The research was conducted in the Central Region of Ghana. Central Region, occupies an area of 9,826 square kilometers or 4.1 per cent of Ghana's land area of Ghana. A total of 2,201,863 populations for the region at 2010 population census, of Ghana's population. The region is divided into administrative districts. The total number of districts is 17. Located in the South –Western center of Ghana, the Central Region shares boundary with the Ashanti Region in the North, Eastern Region to the North-East, Greater Accra Region to the South-East and on the West by the Western Region. It is bounded to the south by the Gulf of Guinea. The region has a coastline of 150Km, and is the longest coastline in Ghana. It is one of the smallest regions in Ghana, only bigger than Upper East and the Greater Accra Regions. Seventeen (17) administrative Metropolis/Municipalities/districts prevail. The largest is Assin North with a land area of 2,375 km^2 and the smallest being Cape Coast/ Efutu. The Temperature is generally high and ranges between 24ºC and 34º C. The region has a bi-modal rainfall pattern averaging 800 mm to 1500 mm with the coast having the least. The major season spans April to July and the minor, September to November. Pictorial view of rainfall distribution. It has a relative humidity of between 50% and 85%. 9,830 km^2, 4.1% of the Total land area of Ghana. Total cultivable land area is estimated at 7,864 km^2 (about 80% of the Region's Total Land Area). However, only 3,932 km^2 (40% of the Region's Land area) is under cultivation.

All resident farmers from selected districts were included in the study. Sampling is a technique through which study respondents were selected from a target population. Given the study's geographic reach, multi-stage techniques were favoured as it provides the researchers with an opportunity to sample a large number of units at a given cost (Kothari, 204). The sampling method entails stratifying the Central Region into an urban and rural eco sustainable farming district that were relied. In order to arrive at a representative sample, the study employed the Yamane formula for sample size determination represented as size n=N/([1+N 〖(α)〗 ^2]) where n=sample size, N= sampling frame and α represent the margin of error or confidence level and other population attributes deemed necessary. The study used structured interview guide as a data collection tool the random sampling technique to select the respondents for the study.

A pretest was conducted to assess feasibility, time, cost, adverse events, and improve study design before a full-scale research project is performed. The quality of the tool was tested by both the interviewer and the interviewees in terms of readability, accessibility, validity and representativeness of the interview guide items in the research instrument. Pre testing was to help the researchers in identifying errors that might arise from the research instrument. The necessary corrections and modifications were made before finally administering the research instrument.

The researchers together with 5 trained research assistants from the Department of Agricultural Economics and Extension conducted the data collection exercise. The research assistants were trained on the purpose of the study and the administration of the instruments. The respondents were assured of maximum information security of the information they gave to us since the study was main for academical purpose. The selected farms in the various towns/villages were visited for face-to-face interviews following agreed appointments. The survey interviews were coordinated by the researchers, and worked closely with the research assistants to constantly check entries to ensure consistency in responses across and within interview instruments. This was done to also ensure that responses were from the right sources. The instruments were sent to the respondents in their homes and their farmers. The hired research assistants guided the respondents to fill the responses or fill it for them in the of an interview.

Statistical Package for Service Solution (SPSS) version 20 was used to analyze the quantitative data. The raw data were coded and entered directly into the SSPS software. The analysis then began with general critical reading to develop a system of coding for the verbal responses. T- Test (Two sample T-test) was used to determine the difference between male and female household consumption outcome.

Analysis and Discussion

Table 1 shows the educational level and marital status of the respondents. Out of the 408 respondents 296 representing a mean score of 2.67 were male while 126 representing a mean score of 2.209 female. Analysis of gender distribution of the households also revealed majority (296) of the household farmers are males and female households being in the minority (126). Counting on marital status, 293 representing a mean score of 1.102 of household farmers were married as against 121 married female household farmers. It can be further noticed that male household farmers had farming as their major occupation. On the other hand, 46(52.3%) of the male household farmers have had no formal education, 69(71.1%) primary education, 124(75.6%) middle school/JHS, 50(79.4%) O' Level and 7(87.5%) have also gone through tertiary education. Regarding the female household farmers, out of the total number of respondents, 42(47.7%) have had no formal education, 28(28.9%) middle school/JHS, 40(24.4%), 13(20.6) O' Level and 13(20.6) tertiary education. Education is a form of social capital that is supposed to improve household farming activities. According to Shaikh (2007) [28], educated people have the ability to understand and utilize the information they are given. Them Lower educational levels make it more difficult to obtain better work prospects in the labour market, as well as obstructing more profitable enterprises (FAO, 2012). again, Our outcomes showed that majority (353) of both respondents had attained no formal up to JHS level of schooling diminished the likelihood of extreme and moderate food unavailability of 420 ranch families however expanded the diversity of food consumption. Some degree of training is significant in guaranteeing variety of food utilization in ranch family. The result is similar to Ngema *et al*., (2018) [23], whose work was investigation into the Family Food Security Status and Its Determinants in Maphumulo Nearby Region, South Africa where instruction positively impacted the food security status of families.

Table 1: Demographic response of respondents

Educational level and marital status of respondents					
	Sex of respondent	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
educational level of respondents	male	296	2.6723	1.00712	.05854
	female	124	2.2097	1.06896	.09600
marital status of respondent	male	293	1.1024	.30368	.01774
	female	121	1.0992	.30014	.02729

		Educational level of respondents					**Total**
		No formal education	**Primary education**	**Middle School/ JHS**	**A level/O level/SHS**	**Tertiary Education**	
sex of respondent	male	46(52.3%)	69(71.1%)	124(75.6%)	50(79.4%)	7(87.5%)	296
	female	42(47.7%)	28(28.9)	40(24.4%)	13(20.6)	13(20.6)	124
Total		88	97	164	63	8	420

Food accessibility dimensions

Table 2 revealed the food accessibility dimension of both household male and female farmers. A question was asked about how often do male and female household farmers worry about having enough food and out of the total number of male respondents, 35(12%) said never, 98(33) indicated rarely, 120(41%) revealed sometimes and 43(15%) said often. In the same way, 14(11%) of the female household farmers indicated never, 44(35%) of them chose rarely, 51(41%) of the female respondents said sometimes while 15(12%) said often. Food accessibility is the capability to accumulate adequate food of ensured quality and amount to satisfy dietary demands of all home participants. Rightly, the food needs to reach appropriate location at the right time and other people need to have financial flexibility or buying power to get sufficient and healthy food. Kuwornu *et al*., (2011) [19], asserted that food accessibility is identified by physical and funds available to buy social and political elements. Concerning 'how often were households members have to eat a limited variety of foods due to lack of resource', one hundred and eighteen (118) household male respondents representing (40%) indicated that sometimes, they had to eat a limited variety of food items due to lack of money and the least respondents who sometimes eat a very limited food due to lack of resources were tenty nine (29) representing (10%). Also, fifty six (56) respondents also were of the view that sometimes they had to eat limited food due to lack of resources representing (45%) while the least female respondents were 6(5%). Per the results, it can be said that majority male of the male respondents eat limited food due to lack of resources and there exists a significance difference between the male respondents who had limited food items and the female household members.

Regarding whether the household members have to eat foods that they do not want to eat due to lack of money, 32(11%) of the male household members said never, 116(39%) indicated rarely, 114(39%) revealed 'sometimes' while 34(11%) of the male household members selected often. The results revealed that majority of the male household members could not afford to eat their preferred foods due to lack of money. Likewise, 11(9%) of the female household members were of the view that they eat their prefer food, 52(42%) said rarely, 57(46%) indicated 'sometimes' and 4(3%) indicated 'often'. Per the results, it could be said that majority of the female household members were of the view that not all the time that they get their preferred food. Food Availability alludes to the actual presence of food which might come from own creation,

buys from inward market or import from abroad. Gregory *et al*., (2005) [14] clarified that food accessibility alludes to the presence of food stocks for utilization.

Respondents were asked them to indicate how often they ate a less food during breakfast, lunch or supper. Per this statement, 31(10%) of the male household farms were of the view that they have never enjoyed a three (3) square meals a day due to unavailability of food and fund, 119(40%) of the respondents indicated rarely, 111(38%) of the respondents said sometimes, 35(12) also stated frequently. The data from the female household farms show that 14(11%) said they eat three (3) square meals a day, 42(34%) indicated rarely, 50(40) also said that due to lack of money and family size, sometimes they had to eat little food at breakfast, lunch, and supper. The results from both male and female household farms revealed that a majority of the male household farms always eat less food for break, lunch or supper Riely *et al*. (1995) [24] emphasized on having adequate assets to get appropriate food for people. It is the manner in which various individuals can get the accessible food. Ordinarily, the authors indicated that food is accessed through a mix of home creation, stocks, buy, deal, presents, getting or food help. Food access is guaranteed when networks and families and all people inside them have sufficient assets, like cash, to get suitable food sources for a nutritious eating routine. Accessibility of food depends on the family available income, the cost of food, and different components.

With regard to whether respondents had food in their various homes, 41(14%) indicated 'never' signifying there do not have food in their homes, 122(41%) also said not frequent, 97(33%) answered 'sometimes' while 36(12%) said 'often' this results were revealed by the male household farms. The results from the female household respondents reveals that 14(11%) said they have no food available at home, 53(43%) indicated 'rarely, 49(40%) indicated that sometimes food becomes scares in their homes but only few respondents 8(6%) said 'often.'

Concerning whether respondents sleep without eating; it was realised that, fifty male household farms 50(17%) eat before going to bed, 141(48%) indicated 'rarely' 74(25%) said sometimes they sleep without food while 31(10%) said 'often'. On the other hand, the results from the female respondents show that 23(19%) were of the view that they eat before sleeping, 62(50%) indicated 'rarely', 32(26%) also said sometimes they sleep without food but only 7(6%) of the female respondents stated 'often'. To find out if any of the respondents do not eat the whole day, it surprised to know that the an appreciable number of male respondents 69(23%) sometimes stay all day long without food whereas the female respondents was 54(44%). It was again noticed that 34(11%) of the male household farms frequently stay the whole day without food but a few female household respondents 5(4%) indicated same. It can be said that the number of male household farms who at times find it difficult to get a three square meals a day are more than that of the female.

Table 2: Food Accessibility dimension

Food Availability	Male				Female			
	Never (%)	Rarely (%)	Sometime (%)	Often (%)	Never (%)	Rarely (%)	Sometime (%)	Often (%)
Worry about food	35(12)	98(33)	120(41)	43(15)	14(11)	44(35)	51(41)	15(12)
Not eating preferred food due to lack of money	32(11)	116(39)	114(39)	34(11)	11(9)	52(42)	57(46)	4(3)
Limited variety of food	33(11)	116(39)	118(40)	29(10)	8(6)	54(44)	56(45)	6(5)
Not eating due to lack of money	35(12)	127(43)	104(35)	30(10)	10(8)	59(48)	48(39)	7(6)
Not eating 3 meals due to lack of money	31(10)	119(40)	111(38)	35(12)	14(11)	53(43)	50(40)	7(6)
Eating less than 3 meals daily	40(14)	107(36)	116(39)	33(11)	16(13)	42(34)	57(46)	9(7)
No food at home	41(14)	122(41)	97(33)	36(12)	14(11)	53(43)	49(40)	8(6)
Sleeping without eating	50(17)	141(48)	74(25)	31(10)	23(19)	62(50)	32(26)	7(6)
Not eating at all	65(22)	128(43)	69(23)	34(11)	30(24)	54(44)	35(28)	5(4)

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
how often did you worry that your household would not have enough food	Equal variances assumed	.266	.607	.401	418	.688	.03738	.09316	-.14574	.22050
	Equal variances not assumed			.407	238.201	.684	.03738	.09185	-.14355	.21831
how often were you or household member not able to eat preffered kind of foods due to lack of resources	Equal variances assumed	6.051	.014	.834	418	.404	.07127	.08541	-.09661	.23916
	Equal variances not assumed			.896	272.634	.371	.07127	.07953	-.08529	.22784
how often were you or household member have to eat limited variety of food due to lack of money	Equal variances assumed	5.537	.019	-.009	418	.993	-.00076	.08386	-.16560	.16407
	Equal variances not assumed			-.010	270.698	.992	-.00076	.07831	-.15494	.15342
how often were you or household member have to eat some foods that is not	Equal variances assumed	3.966	.047	.192	418	.847	.01646	.08549	-.15159	.18450
	Equal variances not assumed			.204	262.817	.839	.01646	.08082	-.14267	.17558

really wanted due to lack of resource										
how often did household has to eat less food (morning/earning) because there was not enough food	Equal variances assumed	2.009	.157	1.187	418	.236	.10353	.08721	-.06789	.27496
	Equal variances not assumed			1.231	250.825	.219	.10353	.08408	-.06206	.26912
how often did household have to eat fewer than three meals	Equal variances assumed	.932	.335	.043	418	.966	.00392	.09075	-.17445	.18230
	Equal variances not assumed			.044	244.487	.965	.00392	.08845	-.17031	.17815
eating any kind of food due to lack of resources	Equal variances assumed	3.270	.071	.233	418	.816	.02114	.09072	-.15719	.19948
	Equal variances not assumed			.245	258.870	.807	.02114	.08631	-.14881	.19110
sleep at night hungry because there was not enough food	Equal variances assumed	2.720	.100	1.156	418	.248	.10506	.09089	-.07360	.28371
	Equal variances not assumed			1.196	249.365	.233	.10506	.08784	-.06795	.27806
go a whole day and night without eating because there was not enough food	Equal variances assumed	3.771	.053	1.276	418	.203	.12228	.09586	-.06615	.31070
	Equal variances not assumed			1.338	257.780	.182	.12228	.09135	-.05762	.30217

Conclusion

This study had its main goals to examine food accessibility dimensions of male and female farm households in the Central Region, Ghana. The study assessed household food accessibility consumed over 7-day period. The study concluded that majority (353) of both respondents had attained no formal up to JHS level of education, diminishing the likelihood of extreme and moderate food unavailability of 420 ranch families, however, expanded the diversity of food consumption. In spite of this, majority of household farms were unable to enjoy a three (3) square meals a day due to unavailability of food and fund.

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