

Determinants of Food Security Status among Young Farmers with and without Disabilities

D. Agole¹, M. A. Brennan², C. D. Baggett³, J. C. Ewing⁴, A. Crump⁵, C. Wacal⁵

Abstract

Food is a basic need; thus, food security status is key to well-being of young farmers. This study examined factors that influence food security status of young farmers with and without disabilities in Uganda. Specifically, the study examined the influence of disability status, region of location, gender, social exclusion, participation in agricultural programs, and social capital on food security of young farmers. The study utilized a comparative and cross-sectional research designs that involved 774 young farmers; 388 with disabilities and 386 who had no disabilities. The sample selection involved the use of stratified, random, and criterion purposive sampling. This research utilized an interviewer-administered paper survey in collecting data. Descriptive statistics and regression analyses were used in analysing data. The findings indicated disability as a factor of social exclusion as the most curtailing to food security, especially in Eastern Uganda. Participation in training programs and social capital development were most likely to increase food security status of young farmers. Therefore, disability-inclusive provision of agricultural extension services targeting young farmers, disability-inclusive awareness raising, and effective implementation of existing disability policies could create an enabling environment to make young farmers food secure.

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1. David Agole, Senior Lecturer, Mountains of the Moon University, P.O Box 837 Fort Port, Uganda, david.agole@mmu.ac.ug,  <https://orcid.org/0000-0002-1297-983X>
2. Mark A. Brennan, Professor, Pennsylvania State University, 204 Ferguson Building, University Park, PA 16802, unescochair@psu.edu, mab187@psu.edu,  <https://orcid.org/0000-0001-8434-3948>
3. Connie D. Baggett, Associate Professor Emeritus, Pennsylvania State University, University Park, PA 16802, bbc@psu.edu,  <https://orcid.org/0000-0001-8434-3948>
4. John C. Ewing, Associate Professor Emeritus, Pennsylvania State University, 215 Ferguson Building, University Park, PA 16802, jce122@psu.edu,  <https://orcid.org/0000-0002-9189-1106>
5. Amanda Crump, Associate Professor, University of California, Davis, CA 95616 USA, acrump@ucdavis.edu,  <http://orcid.org/0000-0002-9710-2956>
6. Cosmas Wacal, Lecturer, Mountains of The Moon University, P.O Box 837 Fort Port, Uganda, cosmas.wacal@mmu.ac.ug,  <https://orcid.org/0000-0002-4831-3191>

Introduction and Problem Statement

Currently, Uganda's population is 45.9 million, with young people under 30 years of age constituting 72.3%, as the largest demographics (Uganda Bureau of Statistics [UBOS], 2024). According to Uganda's Constitution, youth demographic is that category of people between 18 and 35 years of age, which makes up 24.8% of the country's total population (UBOS, 2024). The African Youth Charter refers youth as individuals between 15 and 35 years of age (African Youth Commission, 2006; Organization of Economic Cooperation and Development [OECD], 2015). While Uganda Bureau of Statistics defines the active working age in Uganda as between 15 and 64 years of age as 57.4% of the total population, this study focuses on young farmers between 15 and 45 years of age, representing 43.5% of the active working population (UBOS, 2024).

Despite Uganda's commitment to SDG 2; end hunger, achieve food security and improved nutrition and promote sustainable agriculture, food insecurity is still rampant among young farmers in Uganda (Adeyanju et al., 2023; Moore et al., 2021; Schwartz et al., 2019). This is further justified by the 2024 Global Hunger Index that ranked Uganda as 105th out of 127 countries globally with a score of 27.3 (severe), against the 18.3 score for the world considered moderate (Global Hunger Index, 2024). While the Global Hunger Index for Uganda is 27.3, food security situation for people with disability that constitute 12.4% of Uganda's population (UBOS, 2024), experience a double disadvantage against attaining food security because of social exclusion as a youth and having a disability (Agole et al., 2021).

Theoretical and Conceptual Framework

Disability refers to as a limitation in participation in daily living, work, or leisure activities resulting from physical or mental health condition. The study is informed by the social model of disability (Burton, 1993) and interactional theory (Wilkinson, 1991). The social model, which is mostly used in disability studies in the global South; as a disadvantage society imposes on people with disabilities that impedes them from accessing existing social and economic opportunities, rendering them dependent on other people for support services (Ikendi et al., 2023; Lamino et al., 2024). While most disability studies in the global North prefer the medical model (Eide et al., 2021), which views disability as pathological condition— an individual affected can be diagnosed and treated (Agole et al., 2019).

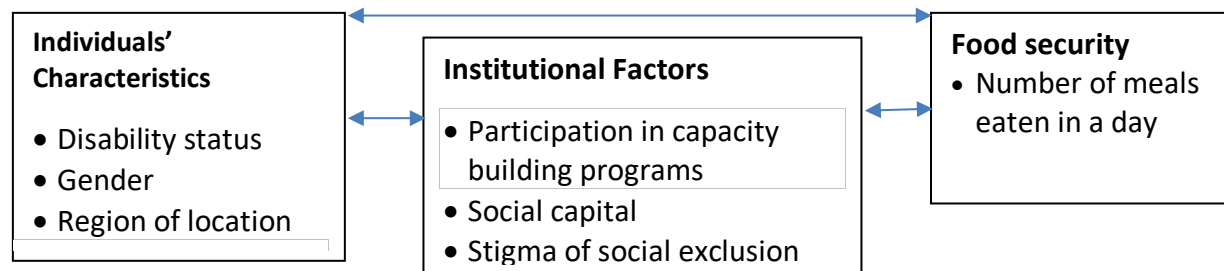
Therefore, the social model of disability seeks to explain how social structural barriers in society disadvantage people with disability from accessing benefits meant for the public like participating in agricultural extension capacity building programs. Most often people with disability are either directly or indirectly deprived from participating in public programs by outrightly being told to wait for programs that specifically target them that never come or are denied information (Agole, 2021). This deprives people with disability the right to participate in public programs that are meant to benefit the public, a factor that keeps constrains people with disabilities from developing capacities that would enhance agricultural productivity to assure food security.

This study used the interactional theory to understand the influence of interactions of people with disability with other members of community to assure food security. The theory posits that a community is comprised of social fields that emanate from individual community members that allow people to connect and interact with one another to form community fields (Pigg, 1999; Wilkinson, 1991). From this perspective, creation of social fields tends to develop wider interactions of community members, which in turn allows individuals to access resources like information on existing capacity building programs a factor that would promote participation of people with disabilities in capacity building programs meant for the public (Agole, 2021). Therefore, the individuals with strength social fields tend to access community benefits as opposed to individuals that experience weak social fields.

The conceptual framework (Figure 1) is derived from the social model of disability and interactional theory. This study conceptualized food security to be influenced broadly by disability status, region of location, stigma of social exclusion, participation in capacity-building programs, and social capital.

Figure 1

Conceptual Framework



Purpose

The primary purpose of this paper was to examine factors that influence food security situation among young farmers with and without disability in Uganda. The specific objectives of this study were to assess the influence of disability status, region of location, social exclusion, participation in training programs, and social capital on food security status of young farmers with and without disability.

Methods

This study was conducted in the Northern and Eastern regions of Uganda because they have the highest disability rates in Uganda, with 14.5% in Northern and 14% in Eastern (Uganda Bureau of Statistic, 2024). The study employed a comparative and cross-sectional research designs. The sample size of 774 young farmers, 388 with and 386 without disability of 16 to 45 years of age, was determined using sampling a table of 95% confidence, with a 5% margin of

error. The sample composed of 493 selected from Northern Uganda (258 with disability and 235 without disability) and 281 from Eastern Uganda (130 with disabilities and 151 without disabilities). Young farmers with disabilities were in the categories of: speaking, hearing, walking, handling, and visual disabilities.

The study employed a mixture of stratified, simple random, and purposive criterion sampling techniques (Table 1). Northern and Eastern regions were purposively selected to participate in the study. The regions were stratified into districts. With the district level, as a point of entry to respondents, a list of all people with disabilities was obtained from the National Union of Disabled Persons of Uganda (NUDIPU) district offices, which served as the sampling frame for individuals. The unit of analysis for enumeration was the individual young farmer with or without disability. The sample scheme is summarized in Table 1.

Table 1

Sampling Scheme for 774 Young Farmers with and without Disabilities

Stratified	Purposive	Random		Reason		
		With Disability (N = 388)	With out Disability (N = 386)			
Region	Northern	258	235	Have highest disability rates		
	Eastern	130	151			
Sub region	Acholi	Gulu District	111	Gulu District	85	Protracted civil was between 1986 and 2004
		Nwoya District	70	Nwoya District	34	
		Omoror District	52	Omoror District	107	
		Amuru District	20	Amuru District	06	
		Agago District	05	Agago District	03	
	Teso	Kumi District	103	Kumi District	83	
		Bukedea District	27	Bukedea District	22	
				Ngora District	46	

The interviewer-administered paper survey, only differentiated by the disability demographic, was used for collecting quantitative data from young farmers with or without disabilities. Social exclusion and social capital were measured on five-point Likert scale responses consisting of most often = 5, often = 4, sometimes = 3, rarely = 2, and not at all = 1. Item on young farmers participation in training programs were rated on a scale of very high = 5, high = 4, neither high nor low = 3, low = 2, and very low = 1. Food security was rated on a four-point response scale consisting of once = 1, two times = 2, three times = 3, and four times = 4, because four is the highest number of meals eaten in a day Eastern and Northern regions of Uganda. Cronbach Alpha (α) was used for testing internal consistency of the summated scales and ranged between $\alpha = .76$ and $\alpha = .94$. The reliability analysis for participation $\alpha = .94$, social capital $\alpha = .76$, food security $\alpha = .86$, social exclusion $\alpha = .87$. Data were collected in 2017 by research enumerators

that included social workers with disability organizations, youth with disabilities, and sign language interpreters in accordance with standards approved by Penn State University Institutional Research Board.

Data for young farmers with or without disabilities were entered in SPSS as separate data files, cleaned, then two data sets were merged with identifier variables created regarding disability status and region. The study employed basic descriptive univariate statistics, bivariate correlations and regression analysis to identify factors that influenced (explain) food security situation of young farmers with and without disabilities. Factors with significance $p =$ or < 0.05 were considered to be statistically significant.

Findings

The findings of the influence of social exclusion, region of location, gender, participation in training programs, and social capital on food security status of young farmers are summarized in descriptive statistics in Table 2, and empirical findings in Tables 3, 4, 5, and 6.

Descriptive Statistics

There were more young farmers with disabilities in Northern Uganda (33.3%) than Eastern Uganda (18.8%). Also, there were more young farmers without disabilities in Northern region (30.4%) than in Eastern region (19.5%). Also, in Table 2, generally very few young farmers with disabilities in Northern region have worked with extension workers on issues related with agriculture (7.7%) and Eastern Uganda (10.7%) and young farmers without disabilities in without in Eastern region (9.3%) and Northern region (8.5%). Both young farmers with disability in Eastern region (27.8%) and Northern region (24.1%) and those without disabilities in Eastern (25.6%) and Northern (21.2%) regions are members of farmer groups in their communities.

Table 2*Descriptive Statistics of the Variables Used in the Study (N = 774)*

Variables used in the study	With Disability (N = 388)		Without Disability (N = 386)	
	Eastern Region (N = 130)	Northern Region (N = 258)	Eastern Region (N = 151)	Northern Region (N = 235)
	%	%	%	%
Disability status (N = 774)	16.80	33.30	19.50	30.40
Region of Uganda (N = 774)				
Eastern (N = 281)	16.80		19.50	
Northern (N = 493)		33.30		30.40
Gender				
Female (N = 247)	12.10	20.30	16.70	13.40
Male (N = 527)	34.20	32.00	37.00	34.30
Participation in extension programs				
Have you worked with any extension worker on issues related with agriculture?				
Yes (N = 136)	10.70	7.70	9.30	8.50
No (N = 638)	35.60	44.60	44.50	39.10
Have you been contacted to participate in any community training programs?				
Yes (N = 136)	10.70	7.70	9.30	8.50
No (N = 638)	35.60	44.60	44.50	39.10
Stigma of exclusion				
Are you a member of any social group in your community?				
Yes (N = 372)	27.80	24.10	25.60	21.20
No (N = 399)	18.50	28.60	28.10	26.10
Social capital				
	M (SD)	M (SD)	M (SD)	M (SD)
Interact with people outside of your community (N = 773)	3.42(0.931)	3.74(1.069)	3.60(1.053)	3.82(1.094)
Travel to places outside of your community (N = 773)	2.50(1.087)	3.00(1.248)	3.09(1.061)	3.68(1.188)
Food security				
How many times do eat a meal in a day (N = 767)	1.79(0.764)	2.10(0.618)	2.09(0.653)	2.56(0.690)

Correlation Results

The factors of social exclusion, region of location, gender, participation in capacity building programs, social capital and food security status of young farmers were correlated to determine the relationship among factors with food security as summarized in Table 3. There is a statistically significant positive relationship between region of Uganda ($r = .25, p < .01$), working with any extension worker on agriculture ($r = .15, p < .01$), interact with people outside of your community ($r = .14, p < .01$), traveling to places outside of your community ($r =$

.35, $p < .01$) and food security status of young farmers. There is a statistically significant negative relationship between disability status ($r = -.26$, $p < .01$) and food security.

Table 3

Correlation Coefficient of the Factors

	1	2	3	4	5	6	7	8	9
1. Disability status	1	.06 ($p < .11$, $n = 774$)	.01 ($p < .97$, $n = 774$)	-.42** ($p < .00$, $n = 562$)	-.05 ($p < .21$, $n = 771$)	.06 ($p < .12$, $n = 774$)	-.05 ($p < .21$, $n = 773$)	-.25** ($p < .00$, $n = 773$)	-.26** ($p < .00$, $n = 767$)
2. Region of Uganda	.06 ($p < .11$, $n = 774$)	1	.05 ($p < .20$, $n = 774$)	-.08 ($p < .06$, $n = 562$)	.08* ($p < .03$, $n = 771$)	.05 ($p < .17$, $n = 774$)	.12** ($p < .01$, $n = 773$)	.20** ($p < .00$, $n = 773$)	.25** ($p < .00$, $n = 767$)
3. Have you worked with any extension worker?	.01 ($p < .97$, $n = 774$)	.057 ($p < .19$, $n = 774$)	1	.38** ($p < .00$, $n = 562$)	.24** ($p < .00$, $n = 771$)	.05 ($p < .13$, $n = 774$)	-.01 ($p < .79$, $n = 773$)	-.05** ($p < .17$, $n = 773$)	.15** ($p < .00$, $n = 767$)
4. Have you been contacted to participate in any training?	-.42** ($p < .00$, $n = 562$)	-.08 ($p < .07$, $n = 562$)	.38** ($p < .00$, $n = 562$)	1	.33** ($p < .00$, $n = 559$)	-.01 ($p < .90$, $n = 562$)	-.03 ($p < .56$, $n = 561$)	-.02 ($p < .69$, $n = 561$)	.09* ($p < .03$, $n = 555$)
5. Are you a member of any social group?	-.05 ($p < .21$, $n = 771$)	.08* ($p < .03$, $n = 771$)	.24** ($p < .00$, $n = 771$)	.33** ($p < .00$, $n = 559$)	1	-.10** ($p < .01$, $n = 771$)	-.25** ($p < .00$, $n = 771$)	-.16** ($p < .00$, $n = 771$)	-.07 ($p < .12$, $n = 766$)
6. Gender	.06 ($p < .12$, $n = 774$)	.05 ($p < .165$, $n = 774$)	.05 ($p < .13$, $n = 774$)	-.01 ($p < .90$, $n = 562$)	-.10** ($p < .01$, $n = 771$)	1	.02 ($p < .63$, $n = 773$)	-.03 ($p < .39$, $n = 773$)	-.00 ($p < .93$, $n = 767$)
7. Interact with people outside of your community	-.045 ($p < .209$, $n = 773$)	.12** ($p < .01$, $n = 773$)	-.01 ($p < .80$, $n = 773$)	-.03 ($p < .56$, $n = 561$)	-.25** ($p < .00$, $n = 771$)	.08 ($p < .63$, $n = 773$)	1	.42** ($p < .00$, $n = 773$)	.14** ($p < .00$, $n = 767$)
8. Travel outside of your community	-.25** ($p < .00$, $n = 773$)	.20** ($p < .00$, $n = 773$)	-.05 ($p < .17$, $n = 773$)	-.08 ($p < .69$, $n = 561$)	-.16** ($p < .00$, $n = 771$)	-.03 ($p < .37$, $n = 773$)	.42** ($p < .00$, $n = 773$)	1	.35** ($p < .00$, $n = 767$)
9. Number of meals eaten in a day	-.26** ($p < .00$, $n = 767$)	.25** ($p < .00$, $n = 767$)	.15** ($p < .00$, $n = 767$)	.09* ($p < .03$, $n = 555$)	-.06 ($p < .12$, $n = 766$)	-.00 ($p < .93$, $n = 767$)	.14** ($p < .00$, $n = 767$)	.35** ($p < .00$, $n = 767$)	1

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

Table 4*Correlation Coefficients of the Variables*

Model	R	R Square	Adjusted R Squared	Std. Error of the Estimate
1	0.52s	0.28	0.26	0.61

Note. The predictors (constant) were disability status, region of Uganda, working with extension workers on agricultural issues, being a member of any social group in a community, gender, interacting with people outside your family, and traveling to places outside your community. The dependent variable was the measure of food security, which is the number of meals eaten in a day.

F Values

The *F value* with the number of meals eaten in a day as the dependent variable and the independent variables are disability status, region of Uganda, working with extension workers on agricultural issues, being a member of any social group in a community, gender, interacting with people outside your family, and traveling to places outside your community. The large *F value* ($F = 25.84, p < 0.05$) reveals that the independent variables influence the outcomes of the dependent variable.

Table 5*F Values*

Model	Sum of Squares	df	Mean Squares	F Values	p
1 Regression	76.77	8	9.60	25.84	<0.05 ^b
Residual	202.36	545	0.37		
Total	279.12	553			

Note. ^a Predictors (constant) disability status, region of Uganda, working with extension workers on agricultural issues, being a member of any social group in a community, gender, interacting with people outside your family, and traveling to places outside your community. Dependent variable how many meals do you eat in a day. ^bThe b-superscript on the p-value of <0.05 implies that the F-value of 25.84 significantly improves the estimation of food security using some of the predictor variables in a-superscript.

Food Security Regressed on Disability, Regions of Uganda, Gender, Social Exclusion, Participation in Training Programs, and Social Capital

The study conceptualised social inclusion (disability status, gender, membership to social groups), region of Uganda, participation in community programs (working with agricultural extension workers, being contacted to engage in community trainings), social capital (interaction with people outside of your community, travel to places out of your community), as factors that influence food security status of young farmers with and without disability in Uganda (Table 6).

Northern region of Uganda has a significant positive influence on food security ($\beta = 0.31, p < 0.05$) of young farmers. Further, working with extension worker on issues related with agriculture ($\beta = 0.15, p < 0.05$), or travelling to places outside their communities of residence ($\beta = 0.25, p < 0.05$) have positive significant influence on food security of young farmers.

Contrary, disability status has a significant negative influence ($\beta = -0.27, p < 0.05$) on food security. In addition, being contacted to participate in community training programs ($\beta = -0.03, p = 0.54$), membership to a social group ($\beta = -0.08, p = 0.10$), or interaction with people outside of your community ($\beta = -0.04, p = 0.29$), or gender ($\beta = -0.03, p = 0.49$) have negative influence on food security status of young farmers.

Reduced Regression Equation:

$$Y (\text{food security}) = 1.04 - 0.27 (\text{disability status}) + 0.31 (\text{region}) + 0.15 (\text{working with any extension worker on agriculture}) + 0.25 (\text{travel to places outside your community})$$

Table 6

Food Security Regressed against Social Exclusion, and Participation in Programs

Model	Unstandardized Coefficient		Standardized Coefficient	t	P
	B	SE of B	Beta		
Constant	1.05	0.20		5.25	<0.05
Disability status (1 = With)	-0.41	0.07	-0.27	-6.23	<0.05
Region of Uganda (0 =Eastern)	0.47	0.06	0.31	7.83	<0.05
Have you worked with any extension worker on issues related with agriculture?	0.26	0.07	0.15	3.72	<0.05
Have you been contacted to participate in any community training programs?	-0.04	0.06	-0.03	-0.62	>0.05
Are you a member of any social group in your community?	-0.10	0.06	-0.07	-1.66	>0.05
Gender	-0.04	0.06	-0.03	-0.69	>0.05
Interact with people outside of your community	-0.03	0.03	-0.05	-1.06	>0.05
Travel to places outside of your community	0.14	0.03	0.25	5.80	<0.05
F = 25.844					
df = 8/545					
p = <.005					
R Square = .28					
Adjusted R Square = .26					
Std. Error of the Estimate = 0.61					

Note. Dependent variable: Number of meals eaten in a day.

Conclusions, Discussion, and Recommendations

The more the young farmers live in a given region of Uganda, work with extension workers on agriculture, interact with people outside of the community, travel to places out of their community, young farmers tend to become food secure and vice versa. Northern Uganda is more likely to be food secure than Eastern Uganda. Disability is the most curtailing factor in young farmers' food security status. Therefore, young farmers with disabilities are more likely to experience food insecurity than their counterparts because the culture and traditions of the community greatly influence the social life of young farmers with disabilities. Usually, young farmers with disabilities tend to experience more difficulties to travel to places outside their communities because of the nature of disability a person possesses and absence of assistive devices such as white cane and wheel chairs. This is because most of the farmer capacity building activities are usually conducted in demonstration sites outside their communities of residence and others in form of exchange visits to other farmers, yet young farmers with disabilities tend to require additional assistance in form of sign language interpreters, wheel chair and pushers, and guides that are often lacking. Also, many public community agricultural programs meant to improve food security status of community members are likely to exclude and discriminate against participation of young farmers with disabilities. Young farmers with disabilities have a lower chance of interacting with people outside their families and communities, and therefore less opportunity to access information and build social capital compared to young farmers without disabilities.

During the 1986 to 2004 civil war in Northern Uganda, people of the region lived in camps. All the people regardless of their social status lived in the same socioeconomic situations and faced similar challenges such as loss of assets, loss of lives, and displacement from their communities of residence. Facing similar challenges and living close to one another, created social cohesion between people with and without disabilities, resulting to improved food security.

Moreover, young farmers in Eastern Uganda are more likely to experience food insecurity because community structures like the Uganda National Union of Persons with Disability that tend to be avenues for capacity building programs that would benefit young farmers with disabilities are less developed in Eastern Uganda. therefore, existence of weak community structures that would facilitate participation of young farmers in capacity building programs tend to disadvantage and exclude participation of young farmers in program meant for the public. It is, especially, worsened by participation in programs that is based on social ties and relatives, thus young farmers with and without disabilities with less social capital tend to miss out participating in community programs.

Much as both young farmers with and without disability experience food insecurity, it is important to note that having a disability, social exclusion tend to deflect a young farmers food security status, especially in Eastern Uganda. Building social capital, especially through travelling to places outside community of residence, and participating in community programs through working with agricultural extension workers are more likely to improve food security of

young farmers. These findings could inform development agencies and organizations for the need for a concerted effort to build the capacity of young farmers with or/and without disability as a fundamental driver to assure food security. Also, critical is reorienting agricultural extension educators and institutional development programs for young farmers towards building structures and programming mechanisms that directly target and accommodate young farmers' interests to attain food security. In addition, alleviation of the antecedents of social exclusion of young farmers with disabilities through disability-inclusive awareness raising and effective implementation of disability policies could create an enabling environment for food security of young farmers with disability. It is therefore, important to conduct research on the appropriate livelihood strategies that could assure food security in young farmers with and without disability.

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