



Women Empowerment: Unravelling the Association between Woman, Husband and Household Characteristics on Women's Empowerment in Eastern Uganda

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How to cite this paper: Shimali, F., Sanya, L.N. and Mangheni, M.N. (2025) Women Empowerment: Unravelling the Association between Woman, Husband and Household Characteristics on Women's Empowerment in Eastern Uganda. *Open Access Library Journal*, 12: e13736.

<https://doi.org/10.4236/oalib.1113736>

Received: June 5, 2025

Accepted: July 26, 2025

Published: July 29, 2025

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Abstract

This cross-sectional study investigated women's empowerment and its associated covariates with 445 women from Iganga and Bugiri districts in eastern Uganda. Data was collected through semi-structured interviews, and the principal component and logistic regression analyses were applied. The results indicate a concerning trend, with almost all (97.3%) of women failing to achieve empowerment, revealing a prevalent state of disempowerment. Women on average were inadequate in six out of ten empowerment indicators. While no significant differences were found in head count results, an examination of inadequacy head count ratios revealed pronounced insufficiency, such as input on productive and credit decisions, group membership, and control over income. Land and assets ownership, visiting important locations, and work balance were major contributors to women's disempowerment. From the regression analysis, women's literacy, participation in training, and household financial situation were positively associated with empowerment, whereas self-employment in agriculture and agreement with redefining women's roles were negatively associated. Marital years positively impacted empowerment, while husband's literacy and residence status had negative associations. Household characteristics, including the number of males, financial situation, and distance to produce markets, also demonstrated significant associations with women's empowerment. The aforementioned findings highlight various complex factors that have an impact on the empowerment of women. This underscores the necessity for focused interventions that address specific indicators and socio-economic factors. The research presents noteworthy perspectives that are beneficial for policymakers, researchers, and practitioners who are dedicated to advancing women's empowerment in comparable situations.

Subject Areas

Sociology

Keywords

Women's Empowerment, Gender Role Attitudes, Empowerment Indicators

1. Introduction

Women's empowerment is a multifaceted concept, often measured as a dynamic process influenced by both direct and indirect indicators. Traditionally, the attainment of this empowerment has been linked to educational and training achievements [1]. However, Coley *et al.* (2021) argue that empowerment extends beyond mere learning and encompasses the development of consciousness and skills [2]. The contextual nature of empowerment is widely acknowledged, with recognition that a standardized measure may not be universally applicable across diverse contexts. Moreover, empowerment initiatives can target both individuals and institutions [3].

In delving into the concept of empowerment, Kabeer's work (2005) has been influential, introducing the domains of agency, resources, and achievement as key components [4]. Ibrahim and Alkire (2007) emphasize the importance of household and individual surveys in selecting indicators for empowerment measurement, stressing criteria such as relevance to the lives of the poor, international comparability, holism, ability to track changes over time, and scrutiny for accuracy, validity, and reliability [5]. Their work suggests that agency, a central aspect of empowerment, can manifest in choices, control, change, and communal belonging.

Building upon these foundations, recent developments have given rise to standardized tools like the Women Empowerment in Agriculture Indices, which have been employed in various developing countries [6]. These tools measure empowerment across domains such as production, resources, income, leadership, self-efficacy, and time use [7]. Notably, the Project level survey Women Empowerment in Agriculture Index (Pro-WEAI) stands out for its emphasis on intrinsic and collective agency, incorporating 12 indicators that go beyond conventional resource-based measures [5]. This tool has been utilized in diverse settings, revealing that less than 50% of women achieve empowerment according to overall indices, with disempowerment observed in decision-making realms ranging from production to leadership.

Studies in developing countries employ a variety of research methods, including qualitative, quantitative, and mixed methods, often utilizing standardized tools for empowerment measurement. However, some studies derive empowerment domains and indicators from theoretical frameworks, potentially hindering cross-context comparisons [8]. Regardless of the approach, findings consistently

highlight women's perceived inadequacies in income, resources, and decision-making power, with limitations in leadership and extension services impacting agricultural outcomes [9].

Empowerment, as evidenced in the literature, is influenced by a range of factors including personal characteristics, husband's characteristics, and household characteristics [1] [10]-[14]. However, despite existing scholarship, there remains a gap in understanding the influence of women's gender role attitudes on empowerment. Gender role attitudes (GRA) are crucial as they inform intra-household decision-making and women's choices [14].

Recognizing the need for further research, this study employs a quantitative methods approach to contextualize and understand women's empowerment and its determinants in Uganda. By utilizing tools that encompass instrumental, intrinsic, and collective agency, the study contributes to the evolving discourse on empowerment. Additionally, the research examines the intensity of women's disempowerment across various indicators, shedding light on factors such as age of the youngest child, food insecurity, financial situation and social factors like tribal differences from the husband, which have not received adequate attention in the existing literature. This research was guided by the following key research questions:

- 1) What is the status of women's adequacy across the 11 empowerment indicators?
- 2) Which of the different women empowerment indicators contributes mostly to women's level of empowerment?
- 3) Do factors such as household type and women's age-group influence women's empowerment Score?
- 4) To what extent does women's empowerment vary across different socio-economic and demographic factors, such as education, age, income, HH characteristics and GRA?

Conceptual Framework

The dependent variable for this study women empowerment is conceptualized to be binary where the woman is either attaining a low or high empowerment level (Figure 1). This study therefore aims to unravel the dynamics of women's empowerment among agricultural households in Iganga and Namutumba districts in eastern Uganda. The framework focuses on the interplay between individual women, husbands, and household factors and examines their potential associations with women's empowerment levels.

The independent variables include the woman's and husband's socio-economic and demographic characteristics. The level of education, literacy, age, age of youngest child, income, and household characteristics are expected to be positively associated with women's empowerment. Higher levels of education and income, along with older age, may contribute to increased agency and access to resources which could result in a woman being empowered. It was also hypothesized

that positive attitudes towards change in gender roles within the household and community would be positively associated with empowerment. Progressive GRA was expected to enhance women's agency and influence their decision-making power which could contribute to their overall empowerment level.

Regarding husband factors, this study hypothesized that women who had husbands with higher levels of education and literacy, husbands with a reliable source of income such as salary, self-employment would associate with high empowerment levels. Similarly, women from food secure households located in urban areas, and also living closer to services such as health centers, produce markets, schools, community meeting centres, and the main road would contribute to women's access to knowledge, which would improve women's agency and their empowerment.

The other variables associated with the relationship were household location, tribal differences, access to development programs and participation in training initiatives. These were hypothesized to moderate the relationship between individual and women's empowerment. Rural or urban settings and the distance from towns or trading centers may moderate the associations between socio-economic factors and women's empowerment.

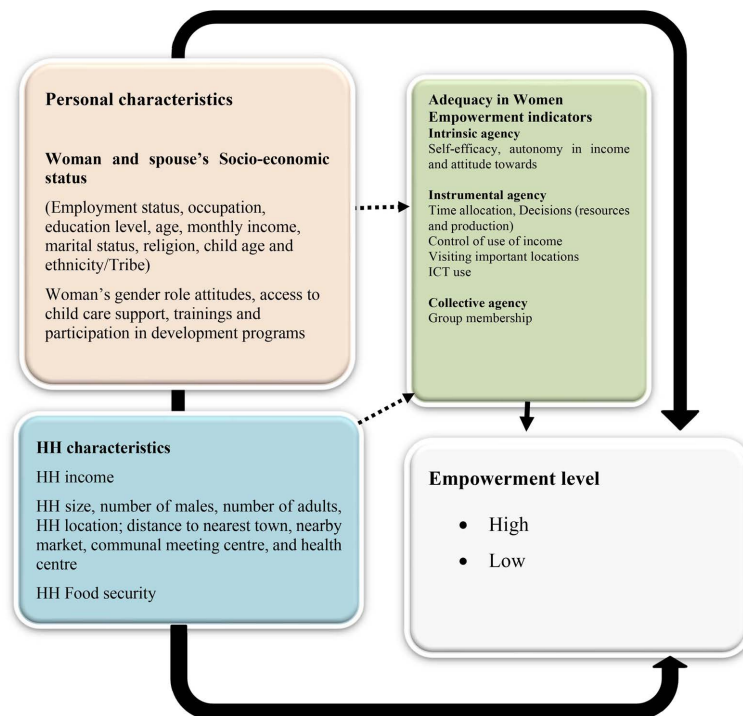


Figure 1. Conceptual framework for women's empowerment and its associated determinants.

2. Methodology

2.1. Research Design and Sampling Procedure

The study was conducted in Bugiri, and Iganga Districts employing a cross-sec-

tional survey design. These districts have low education, poverty and early marriages all pointing to low women empowerment levels [15]. These districts were also among the 15 pioneer districts of the Food Security and Nutrition Project given that had a component of women empowerment. The methodology entirely encompassed quantitative methods approach to seek representation of the target area [16].

2.2. Sampling Procedure and Sample Size

Four sub-counties of Nankoma, Buwunga, Nawanyingi and Namugalwe under Multisectoral Food Security and Nutrition project in Bugiri and Iganga districts in eastern Uganda were purposively selected. From these a total of 2702 households were generated. A sampling table according to Glenn (1992) supported the selection of 445 households for $\pm 5\%$ Precision Levels and Confidence Level of 95% and $P = 0.5$. At household level, women who were caretakers of children from areas were selected.

2.3. Data Collection Procedure and Tools

Data collection for the study objectives used semi-structured interview guides employing the modified Project Level Women Empowerment in Agriculture Index (Pro-WEAI) tool developed by IFPRI with an add-on module on ICT use and gender role attitudes. Additional information added to the tool included individual, household and contextual factors influencing women. These were developed by the researcher and reviewed by a panel of experts including the supervisors and the Makerere College of Agricultural and Environmental Sciences ethical clearance committee (CAES-REC). Pre-testing for suitability was done on a non-participating population of the study. During the cross-sectional survey data collection, the trained female enumerators were used to enable interviewing the woman. This helped to avoid biasing of responses given by the women.

2.4. Ethical Clearance

Ethics approval was obtained from Makerere University College of Agricultural and Environmental Sciences REC (CAES-REC) in 2023 and later the Uganda National Council for Science and Technology (UNCST) under reference number SS2372ES. A written informed consent was obtained from the respondents to participate in the survey before the questionnaires were administered to them.

2.5. Econometric Analysis

2.5.1. Women Empowerment Computation

The approach employed in this study identified 10 Pro-WEAI indicators of women's empowerment in the two districts of study. From the modified Pro-WEAI tool, indicators each respondent was classified as either adequate (=1) or inadequate (=0) in a given indicator by comparing their responses to the survey questions with a given threshold [17].

A respondent's empowerment score was then generated as an average of her adequacy scores in the 10 indicators (all weighted 1/10). If her empowerment score was 75% or higher, or if she was adequate in eight out of 10 indicators, then she was classified as empowered. Conversely, if her score was below 75%, or if she was inadequate in 3 or more indicators, then she was classified as dis-empowered [17]. The Pro-WEAI, was not calculated since the study focused on only women where the gender parity index was not computed.

The empowerment status for women met the assumptions for regression analysis by showing a normal distribution. Specifically, the empowerment distribution curve followed a normal distribution though most participants were on the dis-empowered side (Figure 2). However, due to most individuals being under the disempowered category, this prompted the researcher to create levels for the empowerment following the empowerment mean scores for the women. Individuals whose empowerment score was ≤ 0.6 were rated as low (0), those with a mean score > 0.6 were rated as having high empowerment.

2.5.2. Gender Role Attitude Computation

When estimating relevant and key contributors from a list of variables, factor analysis methods such as principal component analysis (PCA) become handy. This method was helpful in reducing the list of gender role attitude statements to three linear uncorrelated components. PCA a mathematical derivative for organizing data groups similar factors into one principal component [18]. Through PCA correlations amongst variables is eliminated with only principal components explaining variations amongst factors being represented. Before running PCA, data screening is important to ascertain the suitability of performing PCA [19]. From the Kaiser-Meyer-Olkin (KMO) statistic of sampling adequacy on the 15 items, a KMO score of 0.72 indicated that the GRA items were suitable for performing PCA. This KMO score was above the threshold of 0.5 close to the maximum score of 1. According to [19], an additional test of sphericity by Bartlett is carried out to test if a correlation exists between the items. The null hypothesis for this test is that the variables are not intercorrelated. However, chi-square results for this study ($X^2 = 1266.176$; $p = 0.000$) after performing Bartlett test indicated that our items were significantly correlated and suitable for performing PCA.

Similar to other statistical computations, PCA is guided by Kaiser's rule which emphasises retention of components whose eigenvalues (λ) > 1 during determining of the number of components. This is to enable the identification and clustering of principal components for further interrogation [18]. Through the use of the orthogonal varimax rotation method and scree plotting, the number of components and those to retain for analysis was established to be four as in Figure 3. However, only three components were considered and these explained up to 46% of the variation. Four items whose loadings were too low (< 0.30) or having high multicollinearity or and two items loading to more than one component were dropped leaving a total of nine items. See Table 1. In principle, the first principal component explains the largest variation amongst factors followed by the pro-

ceeding components respectively in terms of explaining a variation contributing to the overall PCA index. In this study, GRA on Societal Norms and Expectations component came first with two items with pattern co-efficient ranging from 0.30-0.40. This was followed by the GRA component of redefining roles and opportunities having four items with co-efficient scores of 0.32 to 0.48. The third factor component of perspectives on women's work and family dynamics had three items whose co-efficient scores were 0.30 to 0.42.

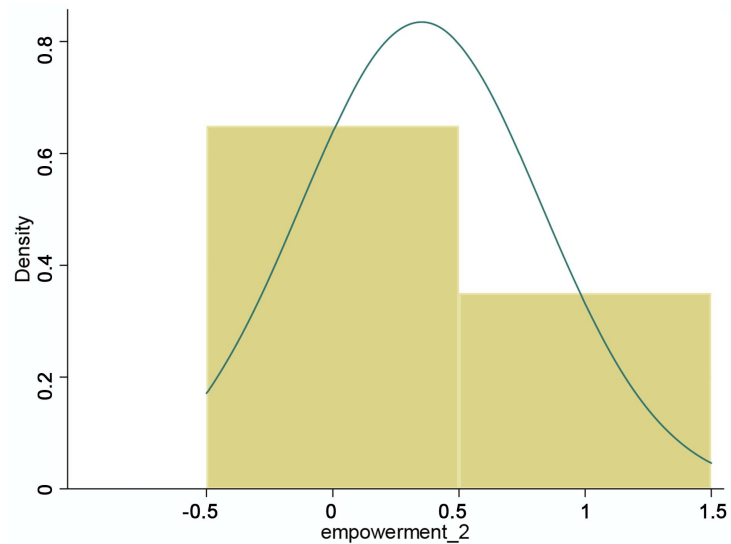


Figure 2. Histogram showing the distribution of empowerment level.

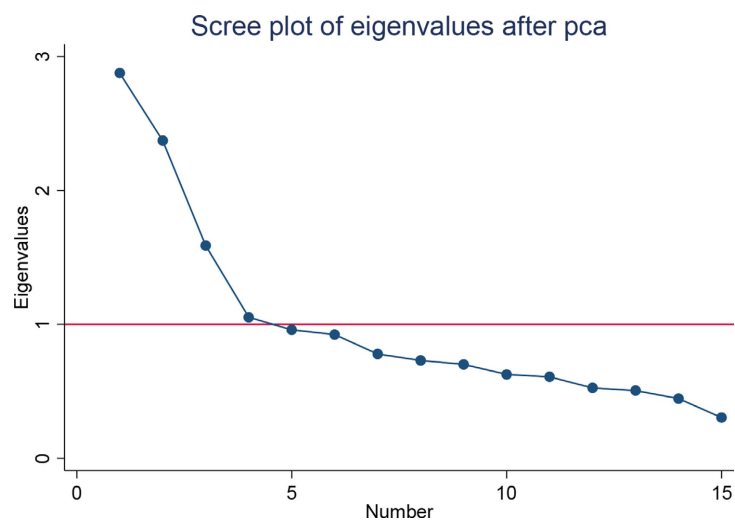


Figure 3. Scree plot after PCA for GRA.

2.6. Empirical Model to Determine the Factors Influencing Women Empowerment

In this study we hypothesized that women's empowerment is influenced by woman's, husband's and household characteristics. The socio-economic of the woman and the spouse and household factors will be examined as the determinants

Table 1. Rotated gender role items.

Variable	Component		
	Societal norms and expectations	Redefining roles and opportunities	Women’s work and family dynamics
‘A husband’s job is to earn money; a wife’s job is to look after the home and family’	-0.3037		
Working wives cause marital disharmony	0.4034		
Bringing up children is the most important job for women		0.3171	
Working outside the home is equally important for women		0.4411	
Women should work even after child bearing		0.4761	
Children benefit if their mother has a job outside the home		0.4587	
Women should work part-time because they have to raise children			0.3319
Women should not get a job requiring much responsibility and travel			0.4225
Domestic chores should be shared between the husband and the wife			-0.3013
Women working outside the home put a strain on the family			
Women do not have to work outside the home if there is no economic need			
Women in high social status positions cannot raise well their children			
Major household decisions on expenditure of income should be decided by husbands			
It is important to raise a boy to make more money and a girl to make a good house wife	0.395		-0.343
Daughters should be raised to become housewives and sons to have paid jobs	0.380		-0.3782

of women empowerment as in **Table 2**. Logistic regression analysis will be performed to determine the socio-economic characteristics that are significantly associated with women’s empowerment where the woman is either empowered (ED) or disempowered (DE). According to [20], the logistic regression model takes on a binary form written as:

$$p(z) = \ln \frac{p(z_i)}{p(z_i - 1)} = \beta + \beta_{1y1} + \dots + \beta_{kyk} \tag{1}$$

$$p(z_i) = \frac{e^{(\beta_0 + \beta_{1y1}j + \dots + \beta_{kyk})}}{e^{-(\beta_0 + \beta_{1y1}j + \dots + \beta_{kyk})}} \tag{2}$$

This determines the level of relationship between the dichotomous empowerment indicators and the selected independent variables, by converting each of the WE score to a probability variable which alternates between 0 and 1:

Where z_i is the dependent variable for the i^{th} observation and y_{ij} is the j^{th} independent variable ($j = 1, 2, 3, \dots, k$) for the particular observation, β_j is the j^{th} estimated

parameter of y_{ij} and captures the effect of y_{ij} on overall women empowerment. Explanatory variables for the empirical model are listed in **Table 2** below.

Table 2. Variables specified in the binary logistic model.

Variable description	Measurement	Expected signs	
		DE	ED
Woman's characteristics			
Education	Years of formal education	-	+
Literacy	0 = Illiterate; 1 = Literate		
Age group	0 = youth and 1 = Otherwise	+/-	+/-
Age at which the woman got married	Years		+
Years of marriage	Years	+	-
Age different from husband	Years	-	+
Employment status	0 = Non-paid occupation; 1 = Salary; 2 = Self-employed nonagricultural; 3 = Self-employed agricultural	-	+
Monthly income	Amount in Uganda shillings		+
Religion	0 = no religion 1 = Muslim 2 = Catholic 3 = Protestant 4 = Pentecostal 5 = other Christian	+/-	+/-
Age of youngest child	Years	+/-	+/-
Child Breastfeeding status	0 = Yes 1 = No		
Type of phone owned	0 = No phone 1 = basic phone 2 = smart phone 3 = Basic and smart phone	-	+
Tribes of the woman	Same as husband = 0 Different from husband = 1	-	+
Societal Norms and Expectations		+	-
Redefining Roles and Opportunities		-	+
Perspectives on Women's Work and Family Dynamics		+	-
Marital status	0 = Not married; 1 = Married monogamous; 2 = Married polygamous	+/-	+/-
Husband's characteristics			
Husband education	Years of formal education	-	+
Husband's literacy	0 = Illiterate; 1 = Literate		
Husband employment status	0 = unemployed; 1 = farmer; 2 = diver; 3 = miner; 4 = formal employment; other = 5	-	+
Husband's monthly income	Amount in Uganda shillings	-	+
Residence status	0 = Never at home; 1 = always at home; 2 = At least home once in a month		
Household characteristics			
HH head age	Years	+/-	+/-
HH head gender	0 = Male; 1 = Female	+	-
HH size	Number of members	-	+
Number of women in HH	Number of members	-	+

Continued

Number of men in HH	Number of members	-	+
Number of children below five years in HH	Number of members	+	-
Number of women in HH above 18 years	Number of members	-	+
Number of men in HH above 18 years	Number of members	+	-
HH location	0 = Rural 1 = urban	-	+
HH distance to nearest main motorable road	Kilometers	-	+
HH distance to nearest town	Kilometers	-	+
HH distance to the nearby market	Kilometers	-	+
HH distance to the nearby village/communal meeting center	Kilometers	-	+
HH distance to nearby health center	Kilometers	-	+
HHs income	Amount in UGX	-	+
HH food security status	0 = very food insecure; 1 = Food insecure and 2 = Food secure	-	+

After running a regression, it is important to rule out the influence of multicollinearity by eliminating explanatory variables that are responsible for this occurrence. Based on the variable inflation factor (VIF) method in the present study factors with a score above 10 such as woman's monthly income, education, her age at first marriage, household type, household head age, household size, and household location were removed from the final model.

3. Results

The study was conducted in Iganga and Bugiri district with 445 women. This section presents respondents with their socio-economic characteristics of the woman, husband and household characteristics. It presents the extent and intensity of women empowerment across the different indicators, and how socio-economic characteristics of the woman, husband and household characteristics associate with women empowerment.

3.1. Characteristics of the Study Sample by the Continuous Variables

From the study, women were aged 30.95 on average which was slightly lower for their husbands by about 8 years. This means that most of the women in the study sample were still youthful, while the men were in their Middle Ages. Women's age could influence the empowerment for the respondents negatively.

The average year at which women got married was 19 and majority have on average spent 11 years at current marriage. This means that women married in their late teen years as depicted by their average years of marriage.

The youngest child under their care was close to two years which could nega-

tively impact on women's workload and overall empowerment.

On the side of education women had an average 6.6 years of school, whereas their husbands had 7.5 years of school. This finding means that majority of the women did not complete the primary level of formal education unlike their husbands who had at least completed the primary level of formal education.

The average household size was 6 individuals, with three males and 3 females of whom one male and female was at least above 18 years of age. These findings mean that most of these households were mainly having children below eighteen years who were probably living with their parents.

On average these households had earned about 790,000 UGX in the last 12 months. This means that on average these households earned 65,000 UGX per month during the same time period.

These findings further revealed that most services for these households including main road, produce market, home town, health center and primary school were accessed within a 5 km distance.

Categorical factors

From the bivariate analysis of the t-test, the mean empowerment score revealed a significant difference in the mean scores for the women of different household type and participation in multisectoral Food security and nutrition Project (MSFP), woman's literacy, and spouse residence (**Table 3**).

Household type: The mean empowerment scores for women from women only households (mean = 0.63) had a significantly higher empowerment score than those from dual households (mean = 0.53), $t(445) = 4.50, p < 0.01$. Women from women only households had a higher likelihood of attaining empowerment than those from dual households.

Participation in MSFP: Also, that women who participated in the MSFP had a significantly lower empowerment score (mean = 0.48) than those that never participated in the project (mean = 0.55), $t(445) = 4.25, p < 0.01$. From this finding women's participation in MSFP didn't increase their likelihood of attainment of empowerment.

Women's literacy: A significant higher mean score (mean = 0.551) was observed with regards to literate women compared to the illiterates (mean = 0.493), $t(445) = -2.85, p < 0.01$. The results indicated that the woman's ability to read and write provided them an opportunity to attain better empowerment scores.

Spouse residence: The mean empowerment scores were also significantly different with spouse residence. Women whose husbands are not always at home had a lower empowerment scores (mean = 0.521) compared to those whose husbands are ever at home (mean = 0.571), $t(445) = 3.55, p < 0.01$. The results mean that women living with their husbands had a higher likelihood of achieving higher empowerment scores compared to those not living with the husband.

Participation in Training: Though not significant at 5% level, access to training was also statistically significant. The empowerment score was lower for women who had not attended training (mean = 0.527) compared to those that did

participate in some training (mean = 0.555), $t(445) = -1.95$, $p < 0.1$ during the last six months before the interview. This means that training of women had some impact on their overall empowerment scores for the women.

However, empowerment scores of women didn't vary for the age group, household headship, child care support, spouse literacy, household location, food security status and financial situation.

Table 3. Women's empowerment score by selected characteristics.

Variable	Mean empowerment score	Diff	Std Err	T-value	P-value
Household type					
Woman only (n = 39)	0.632	0.104	0.023	4.50	0.000
Dual household (n = 406)	0.528				
Relationship to household head					
Not head of household (n = 403)	0.533	-0.0365	0.0225	-1.65	0.1025
Head of household(n = 32)	0.5695				
Woman's age group					
Youths (n = 266)	0.547	0.025	0.013	1.80	0.072
Other age groups (n = 179)	0.522				
Woman's literacy					
Illiterate (n = 59)	0.493	-0.058	0.02	-2.85	0.005
Literate (n = 286)	0.551				
Training					
No (n = 290)	0.527	-0.028	0.014	-1.95	0.050
Yes (n = 155)	0.555				
MSFP participation					
No (n = 360)	0.55	0.071	0.017	4.25	0.000
Yes (n = 85)	0.48				
Woman's tribe					
Same (n = 159)	0.537	0.011	0.015	0.80	0.429
Different (n = 216)	0.526				
Financial situation					
Worsened (n = 370)	0.538	0.007	0.018	0.40	0.702
Improved (n = 75)	0.531				
Child care support					
No support (n = 371)	0.540	0.023	0.0175	1.30	0.1925
Has support (n = 74)	0.517				
Spouse's literacy					
Illiterate (n = 165)	0.534	-0.004	0.0135	-0.30	0.780

Continued

Literate (n = 280)	0.5375				
Spouse residence					
Always present at home (n = 136)	0.571	0.05	0.014	3.55	0.000
Not always at home (n = 309)	0.521				
Food security status					
Food insecure (n = 290)	0.534	-0.0025	0.014	-0.20	0.861
Food secure (n = 155)	0.538				

3.2. What Is the Status of Women Empowerment in Bugiri and Iganga Districts in Eastern Uganda and What Is the State of Adequacy across the 11 Empowerment Indicators?

Women empowerment status

According to results in **Table 4**, more than three quarters of the women (97.3%) are not achieving empowerment. This means that majority of the women in the study area were disempowered. The mean empowerment score of 0.54 means that on average women were adequate in 6 out of the eleven indicators. This means that on average disempowered women experience inadequacy in about five out of the eleven indicators of empowerment and this was below the cut off empowerment score of adequacy in at least eight indicators.

Table 4. Pro-WEAI results for women in Iganga and Bugiri districts.

Indicator	Frequency
Number of observations	445
3DE Index	0.42
% Not achieving empowerment (H)	97.3
Mean empowerment score (A)*	0.54
Number of dual households	406
Gender Parity Index (GPI)	
% Without gender parity (HGPI)	
Mean empowerment gap (IGPI)	
Pro-WEAI	

Intensity of women's disempowerment

Though no significant differences exist between the uncensored and censored head count results (**Table 5**), uncensored inadequacy head count ratio revealed that most of the women were majorly inadequate in ownership of land and other assets, group membership and visiting important locations respectively. These percentages were however lower than the uncensored proportions across all the indicators with asset ownership and women's ability to visit different locations having the highest difference. This means that inadequacy of women across all the

empowerment indicators, equally contributed to the women's disempowerment indicators are also disempowered.

Table 5. Censored and uncensored inadequacy headcount ratios and contribution to disempowerment (%).

Empowerment domain	Empowerment indicator	Uncensored headcount (%)	Censored headcount (%)	diff	Contribution to disempowerment (%)
Intrinsic agency	Autonomy in income	45.25	45.10	-0.15	9.56
	Self-efficacy	37.00	35.60	-1.40	7.55
	Attitude about intimate partner violence against women	39.65	38.40	-1.25	8.12
Instrumental agency	Input in productive decisions	19.30	19.15	-0.15	4.06
	Land and other asset ownership	73.75	72.20	-1.55	15.31
	Access to and decisions on financial services	22.80	22.65	-0.15	4.80
	Control over use of income	30.10	29.95	-0.15	6.34
Collective Agency	Work balance	63.20	61.70	-1.50	13.08
	Visiting important locations	68.80	67.10	-1.70	14.23
Collective Agency	Group membership	72.50	72.10	-0.40	15.28

3.3. Determinants of Women Empowerment

Association between, woman, husband and household characteristics and woman's Adequacy in Land and other Asset ownership

From the results of the regression analysis, woman's current years of marriage, household financial situation, positively and significantly associated with associated with woman's adequacy in land and other asset ownership (Table 6). On the other hand, husband's literacy and gender role attitudes that promote change in women's roles and distance between home, to the nearby primary school negatively associated with woman's adequacy in land and other asset ownership.

From the results of the logistic regression, women empowerment was statistically and significantly associated by the woman and husband's literacy, woman's participation in trainings and the household financial situation. Women's characteristics of current marriage years, and literacy positively associated with empowerment. However, type of employment and GRA in support of redefining women's roles negatively associated with WE. The log odds of women empowerment increase by 3.153 with a woman's ability to read [OR: 3.153; 95% CI [0.365, 5.941], $p < 0.05$], and 2.187 with ability to read and write [OR: 2.187; 95% CI [0.492, 3.882], $p < 0.05$] respectively. This means that a woman who could afford to read or able to read and write increased the likelihood of women's empowerment.

Whereas a woman's marital status had no significant association with WE, our findings indicated that a unit increase in the woman's years of marriage revealed

a positive association with WE [OR: 0.142; 95% CI [0.023, 0.261], $p < 0.05$]. This means that women who had spent more years in marriage have a higher likelihood of being empowered compared to their counterparts the newly married.

Additionally, a woman's participation in trainings was associated with higher odds of women empowerment [OR: 1.33; 95% CI [0.24, 2.42], $p < 0.05$]. Women who had access to training were more likely to be empowered compared to those who did not access training in the last twelve months.

On the other hand, the log odds of women empowerment [OR: -1.473; 95% CI [-2.705, -0.241], $p < 0.05$], reduced by almost one and half with women engagement in agricultural self-employment income generating activities. This means that a woman who is self-employed in agricultural activities is more likely to be disempowered. Also, the women's agreement to attitudes supporting the need to redefine women's roles and opportunities reduced the log odds of women's empowerment by 0.564 [OR: 0.564; 95% CI [-0.978, -0.151], $p < 0.01$]. Our findings mean that support for redefining of women's gender roles may disempower women.

Husband characteristics

The two husband related factors of literacy and residence status that were statistically and significantly associated with WE had a negative association. The log odds of women empowerment [OR: -1.735; 95% CI [-3.326, -0.145], $p < 0.05$] reduced by 1.735 with the husband's literacy particularly ability to read and write. This reveals that literate men contributed to the chances of disempowerment of the women than the illiterate ones. Similarly, this research also observed that the log odds of WE [OR: -1.120; 95% CI [-2.237, -0.003], $p < 0.05$] reduced by 1.120 with husband's residence status. Our results mean that men who are always at home reduce the chance of the women being empowered.

Household characteristics

Number of males, financial situation and Distance between home and nearby produce market negatively associated with WE. The log odds of women empowerment [OR: -0.429; 95% CI [-0.828, -0.030], $p < 0.05$], reduced with a unit increase in the number of males in the household. Our findings mean that households with more males are more likely to have disempowered women. It was surprising that find that the odds of WE [OR: -2.390; 95% CI [-4.21, -0.569], $p < 0.05$] reduced by twice with an improvement in the household financial situation. This finding means that women from households that indicated an improvement in the financial situation in the last 12 months were more likely to be associated with women being disempowered. Furthermore, we also observed a negative association between log odds of WE [OR: -0.379; 95% CI [-0.673, -0.084], $p < 0.01$] and a unit increase in distance between the household and the nearby produce market. This means that women that stay faraway from produce markets are more likely to be associated with disempowerment.

On the contrary women empowerment odds [OR: 0.298; 95% CI [0.061, 0.536], $p < 0.05$] increased significantly with a unit increase in distance between home

and nearby health Centre. This means that women living a distance from the health center were more likely to be empowered in comparison to those living in close proximity.

Table 6. Association between women, husband and household characteristics on women empowerment.

Empowered	Coef.	Std. Error.	t-value	p-value	95% C.I. for EXP(B)	
					Lower	Lower
Woman age group 0 = youth 1 = Otherwise	0.641	0.241	-1.18	0.238	0.307	1.341
Age difference (complete years)	0.983	0.021	-0.82	0.414	0.944	1.024
Age of youngest child (complete years)	0.997	0.01	-0.29	0.77	0.977	1.017
Marital status (Base: Married monogamous)	0.639	0.217	-1.32	0.187	0.329	1.242
Married polygamous						
Current marriage years (complete years)	1.025	.026	0.95	0.344	0.974	1.077
Education level						
Literacy: (base: cannot read and write)	0	.	.	.	.	.
Can sign only	0.327	0.198	-1.84	0.065	0.1	1.074
Can read only	1.663	1.522	0.56	0.579	0.276	9.999
Can read and write	1.858	0.723	1.59	0.112	0.866	3.984
Employment (base: non-paid occupation)	0	.	.	.	.	.
Salary	0.387	0.448	-0.82	0.412	0.04	3.751
Self-employed non-agricultural	0.873	0.976	-0.12	0.903	0.098	7.81
Self-employed agricultural	0.916	0.363	-0.22	0.825	0.421	1.991
Total income from occupation	1.009	0.364	0.03	0.98	0.498	2.046
Gender role attitudes						
Societal Norms and Expectations	0.902	0.083	-1.12	0.264	0.754	1.08
Redefining roles and opportunities	1.054	0.117	0.47	0.636	0.848	1.31
Perspectives on women's work and family dynamics	0.766	0.103	-1.99	0.047	0.588	0.996
Training attended (0 = none, 1 = otherwise)	2.392	0.689	3.03	0.002	1.36	4.208
Participation in MSFNP (0 = no, 1 = yes)	0.296	0.119	-3.04	0.002	0.135	0.649
Tribe difference (0 = no, 1 = yes)	0.929	0.251	-0.27	0.785	0.547	1.577
Type of phone owned: Base						
Does not own a phone	0	.	.	.	.	.
Owns basic phone	0.854	0.263	-0.51	0.608	0.467	1.561
Owns smart phone	0.485	0.384	-0.91	0.36	0.103	2.288
Owns both basic and smart phone	1.151	0.682	0.24	0.812	0.36	3.675
Spouse years of school	0.17	0.1	1.71	0.087*	-0.025	0.366
Literacy: (base: cannot read and write)	0	.	.	.	.	.
Can sign only	2.418	1.261	1.92	0.055*	-0.052	4.889

Continued

Can read only	0.392	1.771	0.22	0.825	-3.078	3.863
Can read and write	-1.961	0.789	-2.48	0.013**	-3.508	-0.414
Employment (base: non-paid occupation)	0	.	.	.	.	.
Salary	0.635	0.72	0.88	0.378	-0.777	2.046
Self-employed non-agricultural	-0.95	1.353	-0.70	0.482	-3.603	1.702
Self-employed agricultural	0.726	0.605	1.20	0.23	-0.459	1.912
District (0 = Iganga, 1 = Bugiri)	1.055	0.596	1.77	0.077*	-0.113	2.224
Spouse residence status (0 = never present, 1 = otherwise)	-1.153	0.578	-1.99	0.046**	-2.285	-0.02
Household characteristics						
Number of males	-0.314	0.197	-1.59	0.111	-0.701	0.073
Number of females	-0.224	0.214	-1.04	0.297	-0.644	0.197
Number of males above 18 years	-0.248	0.639	-0.39	0.698	-1.5	1.004
Total HH income	0	0	-0.73	0.468	0	0
Financial situation (0 = deteriorated, 1 = improved)	-2.712	0.998	-2.72	0.007***	-4.667	-0.757
Distance between home and main road	-0.028	0.086	-0.32	0.747	-0.197	0.142
Distance between home and nearby Town	0.152	0.123	1.23	0.218	-0.089	0.393
Distance between home and nearby produce market	-0.385	0.159	-2.43	0.015**	-0.696	-0.074
Distance between home and nearby primary school	-0.294	0.357	-0.82	0.41	-0.995	0.406
Distance between home and nearby health Centre	0.242	0.117	2.07	0.038**	0.013	0.471
Distance between home and nearby and community meeting place	-0.226	0.648	-0.35	0.727	-1.495	1.043
Food security (base, very food insecure)	0	.	.	.	.	.
Food insecure	0.84	0.645	1.30	0.193	-0.424	2.103
Food secure	0.707	0.536	1.32	0.187	-0.343	1.757
Constant	-2.027	1.581	-1.28	0.2	-5.127	1.072
Mean dependent var	0.119					SD dependent var 0.324
Pseudo r-squared	0.340					Number of obs 328
Chi-square	81.392					Prob > chi2 0.000
Akaike crit. (AIC)	245.873					Bayesian crit. (BIC) 412.766

***p < 0.01, **p < 0.05, *p < 0.1.

4. Discussion of Results

This study examined the contribution of different empowerment indicators to women's disempowerment and further examined the association between individual women characteristics on women's empowerment controlling for spouse and household factors in eastern Uganda. The results first and foremost revealed

that majority (97.3%) of the women did not achieve empowerment. The findings partly agree with (Quisumbing *et al.*, 2021) [22] whose study found that with exception of Malawi with on 28% of the women reporting to be disempowered, more than half of the women in three other countries of Bangladesh (92%), Philippines (67%), and Benin (69) were disempowered [22]. Similar findings have been reported in a study across five projects operating under different contexts where 84% of the women were disempowered [23]. The weighted 3DE score of 0.42 was lower than studies in Bangladesh (0.54) Philippines (0.73), Benin (0.66) and Malawi (0.88) [21]. These findings mean that whereas women still face disempowerment, this manifests differently across different contexts, with highest disempowerment manifestations reported in the African regions.

The surprisingly low disempowerment in Malawi could be because it had the least number of women in the study compared to other countries which have influenced the higher empowerment outcome. Also, the years of education attainment amongst women compared to these other countries was slightly higher which could have contributed to the women's empowerment. The higher disempowerment percentages could be due to the social norms that dictate women's behaviour and voice with regards to decision making which have largely been reported in Asia and Africa. In most communities in the study area in Uganda, some of the women believe that "*what a man says is what a woman says.*" This literally means that whatever the man says is representative of what a woman would have said, this could have influenced responses on empowerment questions by these women.

From our censored head count, we observed a minimal variance between the uncensored and censored head count results a clear indicator that most of the women who were inadequate across the empowerment indicators were equally disempowered. Our findings concur with (Malapit *et al.*, 2019) that no significant variation existed in the censored and uncensored headcount across five projects since the majority of the women were disempowered [13] [24]. These findings indicate that the women's inadequacy in any indicator would contribute to their disempowerment and that could explain why there remains minimal room for variation in results for the censored and uncensored headcounts. From the uncensored headcount results, the largest proportion of disempowered women were also inadequate with regards to input on productive and credit decisions, group membership and control over use of income respectively.

Departing from these findings of Malapit *et al.* (2019) regarding women, men still achieved empowerment even when they were inadequate in some empowerment indicators such as group membership and membership in influential groups [17]. This means that unlike women, men's empowerment has less to do with membership in groups. This could be because men take lead in most decisions in the household but also own most of the assets which made them adequate in most of the other indicators compared to women who were inadequate across several other indicators.

4.1. Contribution of Women Empowerment Indicators to the Empowerment Status

From the overall proportional contributions to women's disempowerment, the indicators that contributed largely to women's disempowerment were ownership of land and other assets (15.31%), group membership (15.28%) and visiting important location (14.23%). These findings are inconsistent with several studies on the major contributor of women's disempowerment that have been identified as group membership [17] [25], workload [10] [26]-[29], control over use of income [30], and respect among household members [23] [26]. The divergence on leading contributors to different indicators to women's disempowerment could be attributed to methodological variations in the indicators included during the formation of the empowerment index. Secondly where cross-country studies compounded indicator contributions and didn't focus on how each of these contributed in a specific country. True to these findings could be due to variation in the social-cultural context in which these studies were conducted that could have contributed to country level variations.

Our findings on the leading contribution of ownership of land and other assets, stress that most women are inadequate in asset ownership which could limit their contribution to productive decisions, and access to financial services within the households. In other African contexts such as Ghana, norms restricting women's control over land and assets limited women's control over assets and contributing on use of such assets [31]. Similarly, the findings could be because of the social construction of the area of study where large assets such as land, machinery and equipment and large livestock are mainly owned by men which could be scaring women from purchasing such assets.

Whereas workload was not leading contributor to disempowerment of women, in our study it is part of the three leading contributors to women's disempowerment. In several other studies across countries workload was the identified as the highest indicator contributing to women's disempowerment in Tanzania [10], Ethiopia [27], South Africa [29] and Timor-Leste [28]. In these studies, time constraint largely contributed to women's disempowerment where women worked more than 10.5 hours in the last 24 hours. The consistency on workload across different regions point to the reality of similarities in burdens faced by women within the households. This could be because, beyond the productive roles such as agriculture, women are socially expected to perform reproductive roles of cooking food for the household members and care work within the households especially in Asia and Africa [32].

The unique role of contribution of mobility to women's disempowerment was similar to [17]'s study in African and Asian countries where women had limited movement to important locations. This could be because the study targeted women who were having children below five years and most cases these women do not have support for child care. Also, this could be to social norms that restrict women's mobility in Asian and African countries, which require women to first

seek spousal approval to move outside the home.

4.2. Determinants of Women Empowerment

From the results of the logistic regression, women empowerment was statistically and significantly associated with the woman and husband's literacy, woman's participation in trainings and the household financial situation. Women's characteristics of current marriage years, and literacy positively associated with empowerment. However, type of employment and GRA in support of redefining women's roles negatively associated with WE.

Literacy significantly enhances the likelihood of women's empowerment. Existing literature on the importance of literates connects it to education which promotes women's autonomy in making life choices and decisions which could contribute to their empowerment [33]-[35]. Interestingly, literate husbands on the other hand seem to contribute to the disempowerment of their wives. Similar studies suggest that education attainment contributes to the empowerment of an individual's own empowerment as evidenced in Philippines and Malawi [21]. This could be due to traditional beliefs or socio-cultural factors that hinder men irrespective of their education level to accept gender equality.

Contrary to our expectations, longer marital duration seems to positively associate with women's empowerment. This study agrees with (Mutuku *et al.*, 2015; Quisumbing *et al.*, 2021), where women with more years of marriage had a higher likelihood of being empowered compared to the newly marrieds [21] [36]. This could imply that with time, women might gain more confidence and autonomy within their marriages and freely express their views and receive a listening ear from the husband during decision making processes [14] [36].

Training programs play a vital role in enhancing women's empowerment, possibly by equipping them with skills and knowledge to be economically and socially independent. This is consistent with a research in Sri Lanka where training of women on micro-finance empowered women [37]. Training of women is a key tool to self-realization for better bargaining and decision making for women within the households [38].

Type of Employment particularly agricultural self-employment seems to disempower women, possibly due to socio-economic constraints and the nature of agricultural work in certain settings. According to [39], the type of employment determined women's empowerment in Pakistan with those having low paying or non-paying employment less likely to attain empowerment. In Bangladesh though women's empowerment was relatively low, working in a production setting disempowered women further compared to wage earners or those coming from entrepreneurial households [21].

Supporting traditional gender roles by women negatively impacts women's empowerment, highlighting the need to challenge and redefine these gender norms. This finding is supported by [40] in their recent study in Papua New Guinea on perceived deprivation, a feeling of deprivation of women's role in decision making

was felt by both men and women but the men still felt that women could only engage in income generating activities without a change in existing gender roles and decision making power. This suggests that even when women support a change in their roles, they find it hard to counter the existing social barriers to supporting their decision making which could limit their route to empowerment. Similarly, [41] in Sub-Saharan Africa in Tanzania a setting similar to Uganda, even when women were allowed a change in decisions on farm management, and coffee income after training, they still viewed some decisions such as financial decisions for household welfare as exclusive for their husbands. These scholars' qualitative findings indicated that according to some of the women, the husband was still viewed as the household head by the women and that he was more powerful and still needed to hold his high position in decision making.

The husband's residence status revealed that, husbands who are always at home might be more traditional in their views and could hinder women's empowerment in a male dominate patriarchal setting. This is consistent with Doss *et al.* (2022) where wives with migrant husbands had higher empowerment scores compared to those with resident husbands in Nepal [42]. The issue about the patriarchal setting as a case with Africa and Asia is that men dominate key decisions in the household and sometimes their course of action is not questioned by the women. There is a common belief among some sub-ethnic groups in the community where this study was carried out that "*what a husband says is what a wife says*" meaning that a married woman has no say regarding the household decisions which could end up disempowering the women from within this community.

For household factors, larger households with more males were associated with decreased women's empowerment, possibly due to patriarchal dynamics. This case is however different from other scholars (Diuro *et al.*, 2018; Quisumbing *et al.*, 2021) who revealed that large households with more women support increased women's empowerment due to the support women received regarding housework hence reducing their workload [21] [43]. In the patriarchal setting, the household and care worker is deemed a feminine role where having more males instead overburdens women with the workload.

An improved financial situation might lead to women's disempowerment. According to [39], Pakistan women contributed more to the household decisions where they contributed at least half of the amount of money to the overall household income. Given that most women in the study area were employed in non or less paying jobs, they could have an insignificant contribution towards decisions made in the household which limits their empowerment in an environment characterised by traditionalism or other socio-cultural factors that hinder women's empowerment.

Our findings have shown that inaccessibility to markets might limit women's economic opportunities and subsequently disempower them. Women's access to markets increases their chances of movement that contributes to their empowerment. Also, women's access to these markets gives them a chance of exposure to

other perspectives on life as they meet and interact with others in the market. This could also give women a chance to engage in marketing of their produce to earn an income which could increase their bargaining power in the household [39].

5. Conclusion and Recommendation

The study contributes to the growing body of knowledge on the determinants of women's empowerment in Uganda. The findings underscore a significant gap in achieving empowerment among the majority of women surveyed. Notably, ownership of land and assets, work balance, and access to important locations emerged as crucial indicators contributing to women's disempowerment.

Further still, the analysis reveals the intersectionality between various individual, spousal, and household factors in determining women's empowerment. Women's and their husbands' literacy, participation in training programs, and household financial status were found to be positively associated with women's empowerment. Conversely, certain factors such as type of employment and adherence to traditional gender roles exhibited negative associations with women's empowerment.

Efforts focused on enhancing women's education to improve their basic and reading literacy, providing access to agricultural and livelihood training opportunities, and fostering economic empowerment could be instrumental in advancing women's empowerment and fostering inclusive development in the region.

Conflicts of Interest

The authors declare no conflicts of interest.

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