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Women Welfare, Gender-Based Violence and Women Empowerment: Empirical Evidence in Metropolitan Yobe State

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Abstract

The core empirical objective of the study is based on assessing the interconnection between women's welfare, gender-based violence and women empowerment programs using a sample of cross-sectional evidence from Yobe metropolitan areas. The study employs the recently introduced generalized ordered Fu (1998) and modified by Williams (2005). Cross-sectional data from 12 local government areas in Yobe were obtained using structured questionnaire with a sample size of 782 women who are victims of gender-based violence and beneficiaries of women empowerment programs. Based on the empirical estimates from the model, the study finds strong linkage between aggregate welfare function of the women as well as gender-based violence and women empowerment programs. Estimates from the regression results confirms that there is statistically significant negative relationship between welfare status of women and gender-based violence which implies that violence against women deteriorates the women's welfare across all the categories used in the study. Additionally, model parameters reveal that, as established by many studies, women's welfare responds positively to women empowerment programs. The study also establishes that socio-economic status of the women plays significant role in determining the welfare status of the women in the society. The study, on the basis of its empirical finding, recommends that policies that support women economic empowerment programs to be proactively initiated and implemented. Additionally, laws protecting women against gender-based violence must be strengthened in the society.

Key Words: Gender-based violence, Women's welfare, women economic empowerment program, generalized ordered logistic model

JEL Codes: M00, M10, M11, and M14

1.0 INTRODUCTION

Gender-based violence (GBV) is a pervasive problem globally. GBV is defined as "an umbrella concept that describes any form of violence used to establish, enforce, or perpetrate gender inequalities and keep in place unequal gender-power relations." This includes intimate partner physical, sexual, and/or emotional violence, non-partner physical or sexual violence, child

marriage, and female genital cutting (FGC). A review of seven Demographic and Health Survey (DHS) from sub-Saharan Africa found that the percentage of women of reproductive age who had reported experiencing physical violence since age 15 was high in all countries, ranging from 30% in Malawi, Rwanda, and Zimbabwe, to around 50% in Cameroon, Kenya, and Zambia, to as high as 60% in Uganda.9 GBV is also associated with numerous adverse short-term and long-term physical, mental, and sexual health problems.

Studies and reports on women's economic empowerment suggest a link between the potential risk of domestic violence and women's participation in economic empowerment initiatives. On reviewing studies on women's economic empowerment initiatives, Hugues et al. (2015) concluded that these initiatives can have positive impacts on marital and family dynamics, but also create adverse effects that may increase domestic violence (Hugues et al., 2015). That being said, the results of empirical studies of this issue tend to be contradictory. While many studies point to an increase in domestic violence against women and girls following their participation in such initiatives (Angelucci, 2008; Suneeta et al., 2010), others report a decrease in violence (Haneef et al. 2014; Kim et al. 2007; Perova 2010). This discrepancy deserves greater scrutiny so as to better contextualize seemingly contradictory results.

Until now, very few studies have documented the practices used to prevent domestic violence and support the women who experience it within the framework of women's economic empowerment initiatives. It should be essential that interventions designed for women should include risk-reduction strategies on domestic violence and take a holistic empowerment approach that considers economic, social and political factors (Hughes et al., 2015). In order to formulate recommendations based on reliable evidence, it is important to identify the risk and protection factors associated with exposure to domestic violence for women who take part in economic empowerment initiatives. It is also necessary to document the perceived impacts of participating in these initiatives, especially those that integrate the issues of gender inequality and/or violence

against women and girls in their programming. This type of integration could entail, for example, designing and implementing awareness-raising, prevention and support activities focused on gender inequality and/or violence against women and girls in women's economic empowerment programs.

Given the centrality of the role of women in families, it is important that family policies and social protection recognize this and seek to strengthen their role. This study reviews the major challenges experienced in their role and how family policies and social protection have tried to address these challenges; and suggests areas that family policies and social protection can play to effectively promote women's role in families. This study does not seek to discredit the contribution of boys and men to the family unit, but seeks to find ways of strengthening the contribution of women and girls who have been disadvantaged because of their gender. The study examines four key areas where there is need to use family policy and social protection to enhance the contribution of women to their families. These areas include land and property rights; food security; employment; and gender-based violence.

Economic empowerment has long been considered a key component in reducing gender inequality and GBV for women and girls. However, results from recent studies have yielded inconsistent evidence on the relationship between women's economic empowerment (WEE) interventions and the risk of GBV. For example, there is evidence to support the theory that women's economic empowerment increases risk of GBV, possibly because increased empowerment challenges the status quo in the household, which can result in the male partner using violence to maintain his position.

Alternatively, there is evidence indicating that increased empowerment reduces GBV because educational or financial empowerment offers higher status in the household which then decreases women's risk of experiencing violence. In addition, results of such studies are difficult to

interpret due to methodological challenges with self-reporting, such as social desirability bias to not report

experienced violence. Conversely, more empowered women may be more likely to recognize abuse as unacceptable and be empowered to report it.

The study is empirically motivated because despite an increasing evidence base, the exact impact of economic empowerment programs on violence—and particularly on intimate partner violence is still unknown. There is no consensus on the impacts of women's economic empowerment on gender-based violence (GBV). Higher ability to leave an abusive relationship because of greater economic empowerment may improve women's situation within relationship (Manser and Brown, 1980).

On the other hand, when women have more resources, men may use instrumental violence to extract these resources (Bloch and Rao, 2006). Or, upset by women's empowerment, men may attempt to restore existing gender structure of male dominance through violence (Buller et al., 2018). Empirical evidence on women's labor market work is just starting to emerge. Yobe metropolitan is a classic case where significant number of gender-based violence is reported. Additionally, skewed economic opportunities are well structured which propel the frequency, likelihood and possibility of gender-based violence. Therefore, this study aims to provide empirical evidence of the interrelationship between gender-based violence, domestic violence, women empowerment and economic change with special reference to the cross-sectional survey data from Yobe metropolitan areas.

Interestingly, empirical evidence has not been established in Yobe metropolitan area and there is little research findings on the impact of gender-based violence on economic opportunities of women in Yobe. The study derives its empirical motivation on the scarce literature and empirical evidence in the study area, Yobe metropolitan area, despite rising cases of the joint

interrelationship between gender-based violence, women empowerment, economic opportunities and economic change.

The study has raised a number of empirical objectives that will be analyzed and guide the research design. The study aims to examine the impact of gender-based violence on socio-economic welfare of women. The objectives will be the guiding framework through which the research will be conducted. The study therefore is exploratory and experimental in nature. The study is organized into five sections. Introduction and review of empirical evidence are presented in section one and section two respectively while methodology and data presentation are presented in section three and section four respectively. Section five concludes.

2.0 Empirical Review of Literature

In this section, the study will develop the conceptual literature, empirical review of related studies and design the theoretical framework of the study.

2.1 Conceptual Framework

2.1.1 Gender-Based Violence

Gender-based violence cuts across economic and social status, ethnicity, and geography. GBV has major implications for almost every aspect of health and development from access to and use of health services to educational attainment, economic growth and full enjoyment of human rights. GBV is rooted in gender-based power inequalities and puts women at a disadvantage because they generally do not enjoy the same economic, political or social status as men. Evidence has also found that IPV, the most pervasive form of GBV, has a significant adverse economic impact at the individual and national level. While there is some literature on the association of experiencing GBV and negative health outcomes, there are substantial gaps in

knowledge about risk and protective factors, causal relationships, and characteristics associated with GBV.

2.1.2 Economic Empowerment

The concept of "economic empowerment" (EE) is heterogeneous and varies in different contexts. In general, EE incorporates strengthening household assets, building sustainable livelihoods, improving financial and household decision-making, and increasing household economic resilience and land tenure. From a programmatic perspective, EE interventions can include a range of activities, such as microcredit services, income generation, savings and microinsurance promotion, and entrepreneurship-related skills training. In the context of women's empowerment, economic interventions have evolved over the past 15 years to place greater emphasis on savings and the growth and protection of livelihood assets instead of merely generating income. These interventions may also include activities that foster social empowerment or build social capital among women, as well as promote the constructive engagement of men and boys as champions of women and girl's economic growth.

2.1.3 Women Economic Empowerment (WEE)

Women's economic empowerment has increasingly been used as an approach to reduce poverty, improve health, child wellbeing, and food security. However, due to its broad and varying interpretations, WEE is not uniformly defined. Many experts conclude that WEE refers to the expansion of women's capacity to "make choices and transform those choices into desired action and outcomes." Similarly, the United Nations Foundation advocates that WEE must represent "meaningful" empowerment which includes not only economic agency but all types of agency that women exercise throughout their lives. Furthermore, because women perform the majority of the world's unpaid care work, other definitions link WEE inextricably to the care economy (including unpaid care work, non-market work, and work of social reproduction) and posit that

WEE can be used to enable social, political, and cultural empowerment. Nevertheless, there is an underlying assumption across WEE definitions that financial capital is the critical barrier to transforming gender dynamics in relationships.

2.2 Empirical Evidences

There are quite a number of empirical studies that have produced established empirical facts in the study of gender-based violence, women empowerment and economic opportunities.

Some of the women who participate in economic empowerment programs appear more vulnerable than others to domestic violence. Ethnic origin, marital status, socio-economic status, education level and place of residence have all been identified as sociodemographic characteristics that can explain increased exposure to domestic violence. According to Hidrobo and Fernald (2013), belonging to an indigenous community, being unmarried, being younger, living in a rural region and having several small children are all associated with greater exposure to domestic violence. As such, practitioners who work to further women's economic empowerment should pay attention to these characteristics in order to better identify the women likely to experience domestic violence and offer them appropriate support.

Studies do not agree on whether women's education level, or that of their male partner, has an impact on their exposure to domestic violence following their participation in economic empowerment initiatives. However, there is a wide consensus that education is an efficient strategy to minimize the risks of domestic violence associated with these initiatives (Dalal, 2011; Dalal, Dahlström and Timpka, 2013; Hidrobo and Fernald, 2013; Vyas and Watts, 2009).

A study by Hidrobo and Fernald (2013) reports that employed women experience less emotional violence and spousal control when they have six or more years of schooling, as opposed to women with less than six years of schooling. It therefore appears that women's education level, and that of their male partner, could constitute a protective factor against domestic violence

(Vyas and Watts, 2009). Conversely, Dalal, Dahlström and Timpka found that among women enrolled in a microfinance program, twice as many highly educated participants experienced domestic violence as the least educated ones, despite allegedly having more egalitarian relationships with their male partners (Dalal, Dahlström and Timpka, 2013).

Finally, a study by Dalal (2011) shows that the frequency of domestic violence episodes seems to be similar among employed and unemployed educated women. However, employed women who experience domestic violence seem to take more steps to seek help, which suggests that being employed acts as a protective factor in domestic violence situations (Dalal, 2011).

Reducing financial precarity in households in which women develop financial independence may be an effective strategy for reducing domestic violence. The stress associated with poverty and low income may lead to a greater risk of domestic violence by male partners (Krishnan et al., 2010). Furthermore, addressing poverty reduction in the home seems to have a positive impact in lowering the frequency of domestic violence experienced by women (Vyas and Watts, 2009).

Being employed and transitioning to the labour market seem to increase women's risk of victimization (Dalal, 2011; Krishnan et al., 2010; Krishnan et al., 2012; Vyas et al., 2015). Women who are gainfully employed seem to experience more domestic violence than unemployed women (Dalal, 2011; Vyas et al., 2015). In particular, women who have recently entered the labour market are eight times more likely to experience domestic violence than unemployed women (Krishnan et al., 2010; Krishnan et al., 2012).

Dalal's study (2011) highlights certain characteristics related to women's employment that could increase their exposure to domestic violence. Among these characteristics, employment outside the home (as opposed to employment within the home) and seasonal and occasional employment (as opposed to regular employment throughout the year) seem to be linked to women's exposure to emotional and physical violence. For example, a greater number of women with seasonal and

occasional jobs report experiencing sexual violence in a conjugal context than women with regular employment (Dalal, 2011).

Furthermore, women who own their business exclusively—that is, independently from their male partner—appear more likely to experience domestic violence, whereas co-owning a business with a male partner appears to be associated with lower rates of violence (Vyas et al., 2015). Indeed, when a woman is an exclusive business owner, her husband has no control over the income generated and is therefore more likely to be confronted with non-traditional gender roles (Vyas et al., 2015).

Women's income also seems to be a factor associated with domestic violence. Women who earn more than their male partner are more likely to experience domestic violence episodes than women whose income is equal to or lower than their male partner's (Dalal, 2011). However, the more women are able to pay for household and family expenses themselves, the less likely they are to experience domestic violence (Dalal, 2011).

Job stability for male partners is also associated with women's exposure to domestic violence. Husbands who experience difficulty in finding and maintaining employment are more likely to exert violence against their wives than husbands who have stable employment (Krishnan et al., 2010; Krishnan et al., 2012). Indeed, unemployed husbands are likely to experience frustration and stress related to their employment status and, as a result, be unable to fulfill traditional gender roles that designate males as providers for the family (Krishnan et al., 2010).

In other words, the employment status of women and of their male partner may conflict with traditional patriarchal social norms that relegate women to housekeeping and caregiving roles and keep them financially dependent on their husbands (Dalal, 2011; Vyas et al., 2015). Women's economic empowerment may challenge men's role as family providers, which could explain why women who are gainfully employed and financially independent are more

vulnerable to domestic violence (Dalal, 2011; Krishnan et al., 2010; Krishnan et al., 2012; Vyas et al., 2015).

3.0 Empirical Methodology

3.1 Introduction

Methodological design can be seen as the logic or master plan of the research endeavor- that which pulls together and structures how the various parts of the inquiry and analysis address the given research questions. In other words, it is the vehicle that delivers the research objectives and it comprises description of the study area, sources of data, method of data collection, population of the study, sample size, sampling frame, sampling techniques, models for each of the objectives, assumptions for each model and *apriori* expectations of the study.

3.2 Description of the Study Area

Yobe is a state located in northeastern Nigeria. A mainly agricultural state, it was created on August 27, 1991. Yobe State was carved out of Borno State. The capital of Yobe State is Damaturu; its largest city is Potiskum. The state borders four states: Bauchi, Borno, Gombe, and Jigawa. It borders to the north the Diffa and Zinder Regions of Niger. Because the state lies mainly in the dry savanna belt, conditions are hot and dry for most of the year, except in the southern part of the state which has more annual rainfall. Yobe State came into being on 27 August 1991. It was carved out of the old Borno State by the Babangida administration. Yobe State was created because the old Borno State was one of Nigeria's largest states in terms of land area and was therefore considered to be too large for easy administration and meaningful development. Ethnic rivalries within the old Borno State also contributed to the decision. While Yobe state is an agricultural state, it also has rich mineral deposits, including gypsum and kaolin in Fune Local Government and very rich agricultural resources as well. The state's agricultural

produce include gun Arabic, .groundnuts, beans, and cotton. The state also has one of the largest cattle markets in West Africa, located in Potiskum.

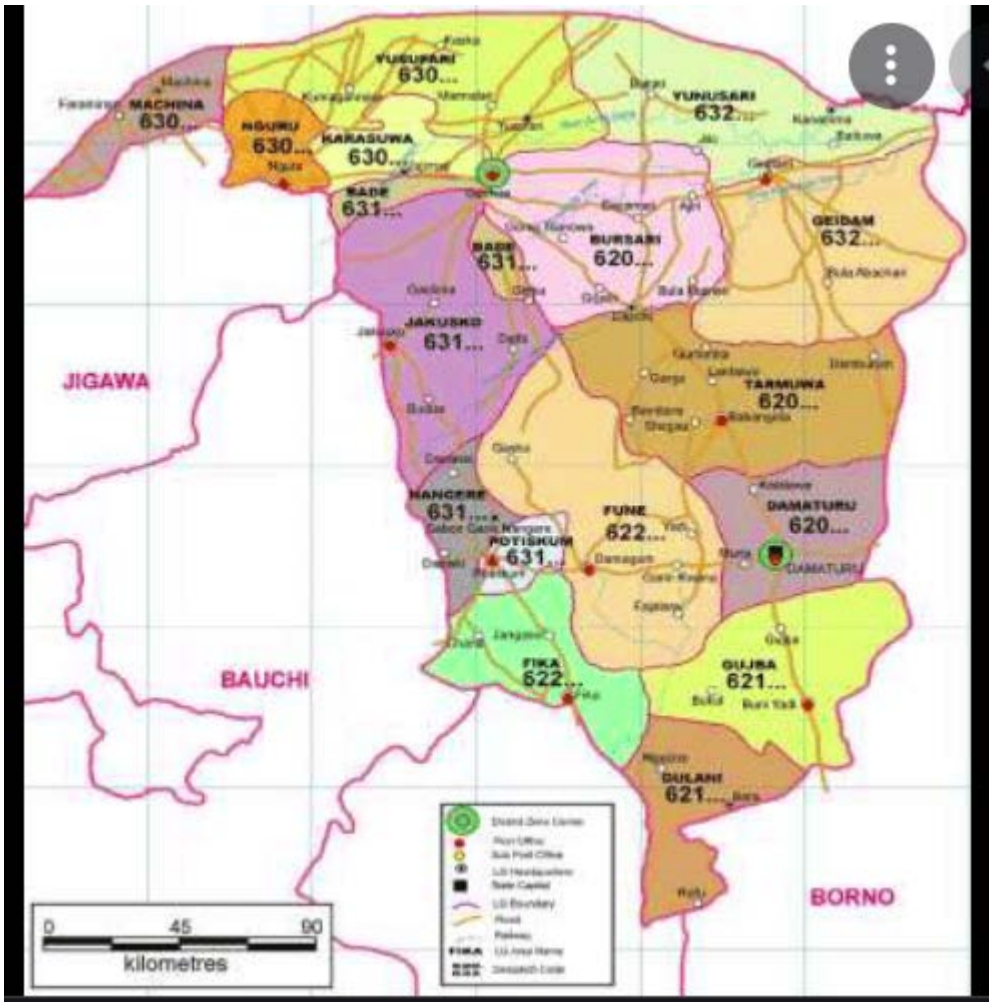

Figure 2: Map of Yobe Showing the 12 LGAs and the Selected Case Study

Source: Wikipedia https://en.wikipedia.org › *wiki* › *Yobe_State*

3.2 Source and Method of Data

The data for this study will be purely primary data to be sourced from the sampled women individuals, victims of gender-based violence and entrepreneurship within the four selected local government areas in Yobe metropolis. The instrument for the data collection is going to be structured questionnaires that will be divided into different sections in line with the research objectives.

3.3 Population of the Study

The population of this study comprises total number of households within selected four LGAs in Yobe Metropolis, total number of certified (registered) women entrepreneurs within selected four LGAs in Yobe Metropolis. Table 1 gives a clear description of population of the study area, and table 2 provides total number of households within the selected LGAs.

Table: 3.1 Population Projections by LGA within Yobe Metropolis from 2009-2013

S/No	LGAs	2006 Population Figure	Projected 2009 Population	Projected 2010 Population	Projected 2011 Population	Projected 2012 Population	Projected 2013 Population
1.	Nguru	418,777	446,008	460,280	475,009	490,209	507,419**
2.	Busari	198,828	211,757	218,533	225,526	232,743	240,914
3.	Damaturu	362,059	385,602	397,941	410,675	423,816	438,696
4.	Geidam	365,525	389,293	401,750	414,606	427,874	442,895****
5.	Gujba	295,979	315,225	325,312	335,722	346,465	358,629
6.	Gulani	596,669	635,467	655,802	676,787	698,445	722,966*
7.	Fika	221,367	235,761	243,306	251,091	259,126	268,223
8.	Fune	369,657	393,694	406,292	419,293	432,710	447,902***
9	Potiskum	454,142	501,467	523,876	589,352	598,243	601,567

Source: National Population Commission, Adopted from Yobe State Statistical Yearbook 2013 Edition/Yobe State Bureau of Statistics.

From table 3.1 above, it is evident that the first four most populated Local Government Areas as projected by the National Population Commission are Damaturu, Nguru, Potiskum, Gujba and Yobe with the respective population as projected in 2013 of 722,966, 507,419, 447,902 and 442,895. These areas have been carefully selected for the study because of their higher population figures when compared with other four LGAs within the Metropolitan City.

Table 3.2: Total Number of Households in the Four Selected LGAs

S/No	Selected LGAs	Estimated Number of Women Households	Sample size calculated using Dillman (2011) formula
1.	Damaturu	8,006	196
2.	Gujba	3,303	195
3.	Nguru	18,780	196
4.	Potiskum	6,664	195

Source: Federal Republic of Nigeria 2006 Population and Housing Census.

3.4 Sample Size

The sample of the research will be obtained using the recommended formula by Dillman (2007 & 2011) which is the advancement of Krejcie and Morgan (1970) and is stated below as:

$$Ns = \frac{(Np)(p)(1-p)}{(Np-1)(B/C)2+(p)(1-\rho)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where:

NS = Computed Sample size needed for the desired level of precision;

Np = Size of the population of the study;

p = proportion of population expected to be sampled;

B = acceptable amount of sampling error (in this case assume +/-5 =0.05);

C = z-statistic associated with the confidence level (in this case assume a 95% confidence level =1.96).

The above formula was use to calculate the sample size and a total of 782 samples of households was arrived at from the population of the study.

3.5 Sampling Techniques

Since the study will be conducted in the eight (4) LGAs within the Yobe metropolis, a total of four (4) LGAs have been purposefully selected based on their population density.

Furthermore, in order to achieve unbiased estimators, a multi-stage sampling technique will be employed but with specific interest to proportional stratified random sampling technique. That is, the questionnaires will be distributed in the proportion of 5:3:1 in low income/high density, medium income/medium density and high income/low density residential areas respectively. This is because of it easy implementation and could create a more representative sample of the population than a single sampling technique. In other words, it is both cost and time efficient while retaining both the randomness and sufficient size of the sample particularly in a general

sampling frame like this. This sample technique is in tune with the recommendations of Maiyaki (2012) and Balian (1982).

3.6 Sample Frame

The procedure for selecting the sample frame will be guided by the socio-demographic classification of the study area which will be divided into low density/high income, medium density/medium income, and high density/low-income residential areas with the questionnaires to be shared in a proportion of 1:3:5 respectively.

3.6 Model Specification

The study employs **generalized ordered logit (gologit) model** developed by Fu's (1998). The study bases the theoretical model on Additive Random Utility Random (ARUM) defined as:

$$U_{ij} = X_{ij}\beta \pm \varepsilon_i \quad \text{.....(1)}$$

Here, ε_i is a random that can assume a number of probability density function such as the normal, logistic, complementary log-log, and Cauchy density functions. It is assumed that if an observation makes a particular choice, say, *J*, the implication is that the utility U_{ij} provides him or her with the maximum satisfaction among the *J* utilities. The probability to observe a particular alternative *j* can therefore be given as

$$\rho(U_{ij} > U_{ik}) \quad for\ all\ k \neq j \quad \text{..... (2)}$$

For the purpose of simplicity if we consider that the relationship can be expressed by a simple linear regression model with no intercept, then the model can be expressed mathematically as:

$$y_i^* = \beta_i x_i + \varepsilon_i \quad \text{..... (3)}$$

In this case, y_i^* is defined to be discrete categorical variable with four distinct cases. The dependent variable measures welfare level of women in the study location. The dependent variable is defined as:

$$y = 1\ if\ -\infty < y^* < \tau_1 \quad where\ 1\ refers\ to\ "strongly\ improved\ welfare" \quad \text{..... (4)}$$

$y = 2\ if\ \tau_1 < y^* < \tau_2 \quad where\ 2\ refers\ to\ "moderately\ improved\ welfare"$..... (5)

$y = 3\ if\ \tau_2 < y^* < \tau_3 \quad where\ 3\ refers\ to\ "fairly\ improved\ welfare"$..... (6)

$y = 4\ if\ \tau_3 < y^* < \tau_4 \quad where\ 4\ refers\ to\ "unchnaged\ welfare"$..... (7)

The covariates to be incorporated into the study are gender-based violence, women empowerment programs and socio-economic attributes. Therefore, we generate the following variables in the model.

i. Gender-Based Violence
ii. Women empowerment programs
iii. Household head
iv. Household size
v. Marital status
vi. Age

The above 6 (six) socio-economic factors are utilized as explanatory variables in the model and determinants of welfare level of women. Thus, socio-economic factors are used in the estimation of model. These interactions are not exhaustive but rather they are used as a guide to investigate the impact of gender interaction with other socio-economic variable in access to finance. Thus, once again, we fit the ordered generalized logit model as previously presented.

The model, taking all the variables together, can be specified as;

$y_i^* = \beta_0 + \beta_1 gbv_1 + \beta_2 wep_2 + \beta_3 hholdhead_3 + \beta_4 hholdsize_4 + +\beta_5 marital\_status_5 + +\beta_6 age_6 + \varepsilon_i$..... (8)

The estimated parameters will be used in assessing the role of gender interaction with other socio-economic variables in access to finance.

A major strength of gologit is that it can also estimate three special cases of the generalized model: the proportional odds/parallel lines model, the partial proportional odds model, and the logistic regression model. Hence, gologit2 can estimate models that are less restrictive than the

proportional odds /parallel lines models estimated by ordered logit model (whose assumptions are often violated) but more parsimonious and interpretable than those estimated by a non-ordinal method, such as multinomial logistic regression. The autofit option greatly simplifies the process of identifying partial proportional odds models that fit the data.

Post model diagnostics involving heteroskedasticity, multicollinearity, residual normality and outlier test are conducted in the paper.

4.0 Results and Discussion

The empirical analysis reports the estimates of summary statistics, the estimate of the parameters in equation (8) and the post diagnostic tests. The survey administered questionnaire to the beneficiaries. A total of 782 copies were randomly administered in line with specifications indicated in section three. The questionnaire contained 32 questions each representing a variable. As such there are 32 variables for the various models used in the study. After due follow up, 549 questionnaires were returned. This indicates that 80% success was recorded in the administration of the questionnaire, thereby giving the process credibility. Table 2 reports the estimates of the summary statistics of the variables.

4.1 Analysis of the Women Empowerment Programs

In this study, the analysis of women empowerment programs is evaluated within the sampled women who receive empowerment intervention programs. The intervention is examined in the context of women welfare status and therefore help the study to answer the question of the impact of the intervention on the welfare of women. The frequency analysis of the women are analyzed in the table below.

Tabulation of Poultry by Fisheries

	Fisheries		
Poultry	0	1	Total
0	138	123	261
1	147	141	288
Total	285	264	549

Tabulation of Poultry by IBO

	IBO		
Poultry	0	1	Total
0	135	126	261
1	151	137	288
Total	286	263	549

Tabulation of Fisheries by IBO

	IBO		
Fisheries	0	1	Total
0	146	139	285
1	140	124	264
Total	286	263	549

Tabulation of Poultry by Fisheries

	Fisheries		
Poultry	0	1	Total
0	138	123	261
1	147	141	288
Total	285	264	549

Tabulation of Poultry by IBO

	IBO		
Poultry	0	1	Total
0	135	126	261
1	151	137	288
Total	286	263	549

Tabulation of Poultry by Lafiya_Jari

	Lafiya_Jari		
Poultry	0	1	Total
0	133	128	261
1	145	143	288
Total	278	271	549

Tabulation of Fisheries by IBO

	IBO		
Fisheries	0	1	Total
0	146	139	285
1	140	124	264

Total	286	263	549

Tabulation of Fisheries by Lafiya_Jari

	Lafiya_Jari		
Fisheries	0	1	Total
0	138	147	285
1	140	124	264
Total	278	271	549

Tabulation of IBO by Lafiya_Jari

	Lafiya_Jari		
IBO	0	1	Total
0	138	148	286
1	140	123	263
Total	278	271	549

Note: Author's estimates using Stata 17

$x_1 = 1$ if beneficiary is male and 0 otherwise;

$x_2 = 1$ if beneficiary has primary level of education and 0 otherwise;

$x_3 = 1$ if beneficiary is less than or equal to 40 years old and 0 otherwise;

$x_4 = 1$ if beneficiary operated his/her business within his/her LGA of origin and 0 otherwise

$x_5 = 1$ if beneficiary is married and 0 otherwise;

$x_6 = 1$ if beneficiary is the household head of the family and 0 otherwise;

$x_7 = 1$ if beneficiary has house hold size more 7 family and 0 otherwise;

$x_8 = 1$ if beneficiary is from poultry loan intervention development program 0 otherwise

$x_9 = 1$ if beneficiary is from lafiya jari loan intervention development program and 0 otherwise

$x_{10} = 1$ if beneficiary is from fishery intervention development program and 0 otherwise

$x_{11} = 1$ if beneficiary is from IBO loan intervention development program and 0 otherwise

Table 3: Frequency distribution of the socioeconomic characteristics of the beneficiaries based on the (MSMEs) programmes

	MSMEs				
Variables	**LJ (n1=205)**	**Poultry (n2=233)**	**Fisheries (n3=23)**	**IBO (n4=88)**	**Pooled**
Household-head					
Yes	126 (65.28)	105 (52.76)	18 (85.71)	57 (65.52)	306 (61.2)
No	67 (34.72)	94 (47.24)	3 (14.29)	30 (34.48)	194 (38.8)
Gender					
Male	164 (80.39)	0 (0)	0 (0)	66 (75)	230 (41.97)
Female	40 (19.61)	233 (100)	23 (100)	22 (25)	318 (58.03)
Ethnic group					
Hausa	97 (48.5)	104 (44.64)	12 (52.17)	58 (65.91)	271 (49.82)
Fulani	16 (8)	14 (6.01)	2 (8.7)	3 (3.41)	35 (6.43)
Hausa-Fulani	86 (43)	111 (47.64)	9 (39.13)	27 (30.68)	233 (42.83)
Others	1 (0.5)	4 (1.72)	0 (0)	0 (0)	5 (0.92)
Age					
18-40	173 (86.07)	146 (63.2)	16 (69.57)	65 (73.86)	400 (73.66)
41-60	28 (13.93)	75 (32.47)	7 (30.43)	22 (25)	132 (24.31)
>60	0 (0)	10 (4.33)	0 (0)	1 (1.14)	11 (2.03)
Education					
Primary	9 (4.43)	60 (26.55)	4 (17.39)	15 (17.05)	88 (16.3)
Secondary	41 (20.2)	77 (34.07)	8 (34.78)	29 (32.95)	155 (28.7)
Diploma/NCE	123 (60.59)	38 (16.81)	7 (30.43)	29 (32.95)	197 (36.48)
Degree	30 (14.78)	51 (22.57)	4 (17.39)	15 (17.05)	100 (18.52)

Source: Author's computation from survey data (2021)
Note: IBO= Informal Business Operators. Values in brackets are percentage, LJ= Lafiya Jari

A total of 549 beneficiaries were randomly selected but only 306 were eventually interviewed which represents 61.2 percent of the sample size (Table 3). The rest of the respondents interviewed were households' members that were regarded as the most important decision makers of the households after the main households' heads. It is worth mentioning that the analysis focused on four groups of beneficiaries from four MSMEs namely, Lafiya Jari (205), Poultry (233), Fisheries (23) and Informal Business Operators (88). Most of the respondents that were finally interviewed during the survey were predominantly from LJ (126) followed by Poultry (105), Informal Business Operators (57) and finally from Fisheries (18). Most of the beneficiaries were females (58.03%) which were unequally distributed across the four programmes (Table 3). Specifically, for Poultry and Fisheries programmes, all the respondents were females while for Lafiya Jari (LJ) and Informal Business Operators (IBO) programmes only 19.61 percent and 25 percent were females respectively. In other words, there was prevalence of females in Poultry and Fisheries programmes while in LJ and IBO programmes the

males were predominant. Most of the beneficiaries, according to Table 3, were Hausas (49.82%) followed by those that were both Hausas and Fulani (42.83%). Those that were exclusively Fulani were about 6.43 percent of the respondents while others only represented about 1 percent of the sample size. The distribution of the respondents' age was based on three grouping (Table 3). Those within the age class 18-40, 41-60 and more than 60 years. The distribution was unequal across the identified age groups based on the pooled data with the modal class being 18-40. In other words, the majority of the respondents (73.66%) were within the age class 18-40 in other words, while the minority (2.03%) fell were more than 60 years. It could therefore be implied that majority of the beneficiaries were generally young as they fell within the economically active age class. This observation was equally true across the four programmes especially in LJ and Fisheries.

However, Poultry programme had the highest percentage of respondents in the grouping of more than 60 years old. The relatively young age of the respondents suggests that the beneficiaries would likely accept innovative ideas regarding their businesses and could therefore serve as important channel for modern technology dissemination as young people tend to be more adventurous than their older counterparts in terms of risk taking.

Four levels of education were observed in the data: primary, secondary, diploma/NCE and degree. The majority of the respondents (36.48%) had a diploma/NCE level of education followed by those with secondary level of education (28.7%), tertiary level of education (18.52%) and primary level of education (16.3%). It implies that all the respondents had a formal level of education which was quite high in general. Although, the level of education was high among the respondents in general, the distribution of education across the four programmes varied extensively.

To examine the impact of gender-based violence and women empowerment programs on access welfare status of the women, as reported in section 3, we estimate the generalized ordered logit (gologit) model as presented in equation (8). Thus, we explore whether women who receive loan intervention and victims of gender-based violence combined with other socio-economic attributes will enhance their welfare level.

The Table 4 presents the results of the estimated parameters of the interaction terms noting that the interacting coefficients are defined as *gbv*, *wep*, *hhold_head*, *hhold_size*, *ms* and *age.*

Table 4: Regression Estimate for the Model in Gender Interaction

Generalized Ordered Logit Estimates Number of obs = 10,335

```
                                                LR chi2(24)       =    1905.16
                                                Prob > chi2       =     0.0000
Log likelihood =  -14811.82                     Pseudo R2         =     0.0604

------------------------------------------------------------------------------
 Welfare status |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
----------------+-------------------------------------------------------------
Strongly Impr   |
           Gbv  |  -.0175184   .0058414    -3.00   0.003     .0060695    .0289673
           Wep  |   .4670114   .1111594     4.20   0.000     .2491429    .6848799
     Hhold_head |  -.0567686   .0033415   -16.99   0.000    -.0633177   -.0502194
     Hhold_size |   1.001372     .10318     9.71   0.000    -1.203601   -.7991431
           Ms   |   .0405209   .0259369     1.56   0.118    -.0913564    .0103145
           Age  |   .0029403   .0021184     1.39   0.165    -.0012117    .0070922
          _cons |   2.644962   1.080364     2.45   0.014     .5274878    4.762437
----------------+-------------------------------------------------------------
Moderately Impr |
           Gbv  |  -.0195521   .0036668     5.33   0.000     .0123653    .0267389
           Wep  |   .1905834   .0694414     2.74   0.006     .0544807    .3266861
     Hhold_head |   .0505292   .0018536    27.26   0.000    -.0541622   -.0468962
     Hhold_size |   .8776763   .0730939    12.01   0.000    -1.020938   -.7344148
           Ms   |   .0429162   .0162573     2.64   0.008      -.07478   -.0110524
           Age  |   .0008957   .0013234     0.68   0.499    -.0016981    .0034895
          _cons |   .6312578    .675748     0.93   0.350     -.693184      1.9557
----------------+-------------------------------------------------------------
Fairly Impr     |
           Gbv  |  -.0273021   .0031678     8.62   0.000     .0210932    .0335109
           Wep  |   .2296253   .0596614     3.85   0.000     .1126912    .3465594
     Hhold_head |   .0380496   .0013508    28.17   0.000    -.0406972   -.0354021
     Hhold_size |   .9141435   .0720313    12.69   0.000    -1.055322   -.7729647
           Ms   |   .0380771   .0131233     2.90   0.004    -.0637983   -.0123559
           Age  |    .000876    .001125     0.78   0.436    -.003081     .001329
          _cons |   2.725016   .5782077     4.71   0.000    -3.858282    -1.59175
----------------+-------------------------------------------------------------
Unchanged       |
           Gbv  |  -.0226226    .003682    -6.14   0.000     .0154059    .0298393
           Wep  |   .0748717   .0692674    -1.08   0.280      -.06089    .2106334
     Hhold_head |  -.0320948    .001523   -21.07   0.000    -.0350798   -.0291098
     Hhold_size |  -.8232145   .0944889    -8.71   0.000    -1.008409   -.6380197
           Ms   |  -.0168645   .0148126    -1.14   0.255    -.0458967    .0121677
           Age  |    .000098   .0013049     0.08   0.940    -.0026556    .0024596
          _cons |  -3.474119   .6726337     5.16   0.000    -4.792457   -2.155781
------------------------------------------------------------------------------
```

From the estimated parameters presented in Table 3, we can infer on the statistical significance of the regressors in the model. The generalized ordered logit (gologit) is estimated over four discrete categories; strongly improved (strongly Impr), moderately improved (moderately Impr), fairly improved (fairly Impr) and unchanged welfare (unchanged). Over each category, estimated parameter of the gender-based violence (gbv), women empowerment programs (wep), household head (Hhold_head), household size (Hhold_size), marital status (ms) and age (Age) variables are reported with its own p-value.

In the first category, ***Strong Imp***, we can see that *Gbv* is statistically significant at 1% level, and it is positively related with the dependent variable. It therefore, can be interpreted to mean that the higher the level of gender-based violence within a community, the higher the level of deterioration of socio-economic welfare of women. Thus, the estimated coefficient of *Gbv* is -

0.0175 (1.75%),which implies that, on the average, socio-economic welfare of women within ***Strong Imp*** will deteriorate by 1.75% for any additional percent increase in gender-based violence within the community. In the same category, (***Strong Imp)***, the estimated coefficient of *Wep* is 0.467 which is highly statistically significant at all levels. The coefficient is positively related which implies that there is statistically significant relationship between socio-economic welfare of women and women empowerment programs. Thus, for any percent increase in the number of women empowerment program, socio-economic welfare of women will increase by 46.7%. All the additional parameters in the ***Strong Imp*** (which Household Head, Household Size, Marital Status and Age) shows that women socio-economic welfare have strong correlation with each of the estimated coefficient in the category. For example, Hhold_head and Hhold_size which represent household head and household size have statistically significant relation with socio-economic welfare of the women. Women who are the household head (Hhold_head) are less likely to have increased welfare as the estimated coefficient (-0.056) is found to be statistically negative at all levels.

In the second category, ***Moderately Imp***, the parameters behave in line with a prior expectation. The coefficient of *Gbv*, which is estimated at -0.019, is found to be highly statistically negatively related to the socio-economic welfare of women within the community. Therefore, we can interpret the coefficient to mean that for any one percent increase in the level of gender-based violence, socio-economic welfare of the women decreases y 0.19% within the community. On the other hand, the estimated impact of women empowerment program (*Wep*) is found to be positively related with the women socio-economic welfare and the estimated coefficient is found to be statistically significant at all levels. Therefore, as assumed in the empirical evidence, women empowerment programs (Lafiya Jari, Poultry, Fisheries and IBO) have positively impacted on the welfare status of the women. Equally, we find that the remaining estimated coefficients in the group (***Moderately Imp***), other than age and constant, all the other estimated coefficients are highly statistically significant.

In conclusion, we can infer that gender-based violence in all the categories (Strongly Imp, Moderately Imp, Fairly Imp and Unchanged) considered in our generalized logit model have statistically significant relationship with the socio-economic welfare of the women within the study area. Equally, on the other hand, women empowerment program seems to have statistically significant positive relationship with socio-economic welfare of the women within the community.

From the result of post-estimation diagnostic test, we can see that the estimated result is well behaved in terms of size of the test of diagnostics. See Table 5.

Table 5: Diagnostic Test of Cameron & Trivedi's Decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	315.24	25	0.0000
Skewness	359.06	6	0.0000
Kurtosis	371.76	1	0.0000
Total	1046.06	32	0.0000

The estimate of the diagnostic tests using the Cameron and Trivedi's approach shows that the model is free from the problem of heteroskedasticity, skewness and kurtosis. This is because the p-value is lowest with highest value of chi-square statistics.

Table 5. Test of Multicollinearity

Variable	VIF	1/VIF
Gbv	2.13	0.470258
Wep	2.04	0.490808
Hhold_Head	1.20	0.830787
Hhold_Size	1.12	0.892627
Ms	1.01	0.991321
Age	1.00	0.998550
Mean VIF	1.42	

Evidently, as presented in Table 5, the model is free from the problem of multicollinearity as the Variance Inflation Factor (VIF) is far from the threshold of high correlation among the independent variables in the model. This suggests that the estimates of the coefficients are unbiased and produce consistent estimates. Thus, inference from this model can be valid for policy implementation.

Table 6: Piar Wise Correlation of the Variables

	Gbv	Wep	Hhead	Hsize	Ms	Age	Const
Gbv	1.0000						
Wep	-0.1479	1.0000					

	0.0000					
Hhead	-0.0320	-0.6987	1.0000			
	0.0011	0.0000				
Hsize	-0.3686	-0.2064	0.0089	1.0000		
	0.0000	0.0000	0.3648			
Ms	-0.1286	0.0057	0.0099	-0.0321	1.0000	
	0.0000	0.5634	0.3121	0.0011		
Age	0.0826	0.0491	-0.0316	-0.3111	0.0906	1.0000
	0.0000	0.0000	0.0013	0.0000	0.0000	
Const	0.0122	0.0169	-0.0039	-0.0232	-0.0107	-0.0170	1.0000
	0.2144	0.0858	0.6952	0.0184	0.2756	0.0834	

Evidently as revealed in the table above, the pair-wise correlation is estimated across the variables and their level of significance. We can see that the nature of correlation among variables varies as some of the variables exhibit positive correlation while other variables are negatively correlated with each other. For example, the correlation between *Gbv* with *Wep* is negative and statistically significant which implies that, on average, any cases of gender-based violence will impact on women empowerment program negatively. Additionally, *Hhead* and *Hsize* is positively correlated which shows that as the women who are household head tend to have larger household size.

5.0 Conclusion

The study establishes the empirical evidence of the impact of women empowerment and gender-based violence on women welfare by abstracting cross-sectional data from Yobe metropolitan areas. Based on the estimates of the generalized ordered logit model, the study confirms that gender-based violence on women has statistically significant negative impact on women welfare as it reduces their welfare status exponentially while empowerment programs initiated to induce women to be more economically productive has statistically significant positive impact on their welfare status. It is also established based on the empirical evidence that additional socio-economic attributes of women such as household head and household size as well as the marital status of the women have impacted on the welfare function of the women. The study concludes that policies against gender-based violence must be implemented and laws protecting women against any form of violence must be also be initiated and observed in the communities of Yobe state. additionally, women empowerment programs must be encouraged in the society which will give women access to economic resources. Therefore, women entrepreneurship programs such as

economic activities of micro, small and medium businesses must be introduced and propagated into the society.

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