Research Article

Vol.7, No 2, 2024
ISSN 2591–6769
eISSN 2953–2663

East African Journal of Applied Health Monitoring and Evaluation

A Logit Regression Approach to Identifying Predictors of Intimate Partner Violence in Tanzania

Mackfallen G. Anasel[1,2] & Idda L. Swai[3]

1. Department of Health Systems Management, School of Public Administration and Management, Mzumbe University, Tanzania.
2. Centre of Excellence in Health Monitoring and Evaluation, School of Public Administration and Management, Mzumbe University, Tanzania.
3. Department of Local Governance and Management Studies, School of Public Administration and Management, Mzumbe University, Tanzania.

Correspondence to: Mackfallen G. Anasel, Department of Health Systems Management, School of Public Administration and Management, Mzumbe University, Morogoro, Tanzania, Tel: +255 784705072. E-mail: mganasel@mzumbe.ac.tz

Received: November 3, 2023 Accepted: November 22, 2024 Published: November 25, 2024

Abstract

Introduction

Intimate Partner Violence (IPV) is among the common forms of gender-based violence worldwide. The IPV magnitude in Tanzania is approximated to be 44%, in which 4 in 10 married women experienced spousal violence. The present study zeroed into the uses of logit regression to identify the predictors of IPV in Tanzania.

Methods

The data was obtained from the Tanzania Demographic and Health Survey 2022. The unity of analysis was currently married women and men. Logit (logistic) regression analysis was performed to determine the predictors of IPV in Tanzania. IPV was measured into three categories: emotional violence, physical violence, and sexual violence.

Results

Women's age, partners' education level, partners' occupation, and frequency of husband/partner being drunk are factors that predict emotional violence significantly ($P<0.05$). Age of household head, age of women at first birth, partners' occupation, women's current age, frequency of husband/partner's drinking habit, women's education level, and literacy level are factors that predict less and more severe physical violence significantly ($P<0.05$). In addition, the wealth index, women's age at first birth, and women's occupation explain the sexual violence significantly ($P<0.05$). While residing in Dodoma, Arusha, Tanga, Tabora, Kagera, Mwanza, Mara, Manyara, Kusini Unguja, Tanga, Songwe, Kilimanjaro, and Katavi has a high likelihood of experiencing IPV significantly ($P<0.05$).

Conclusion

The intervention to address IPV should first focus on changing men's and women's attitudes and beliefs. Change of attitude and belief should be to both men and women who believe that wife beating is okay, and that perpetuates the increase of IPV. This study recommends an emphasis on archiving employment, especially for men who reside in regions where IPV has been expected, to reduce the likelihood of men committing violence.

Keywords: *Logit, logistic regression, Intimate partner violence, Sexual Violence, Physical/ Emotional/Psychological violence*

Research Article

Vol.7, No 2, 2024
ISSN 2591–6769
eISSN 2953–2663

East African Journal of Applied Health Monitoring and Evaluation

INTRODUCTION

Intimate Partner Violence (IPV) as a form of gender violence is the most prevalent violence worldwide. IPV is a public health problem and a social and development issue globally (WHO, 2019a). IPV is any act by an intimate partner that may include physical aggression, sexual coercion, and psychological abuse (WHO, 2019b). This study, therefore, adopted the IPV definition from the WHO IPV: 'Is any behaviour within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship' (WHO, 2019b). Physical violence includes acts such as kicking, hitting, slapping, and beating someone, while sexual violence includes forced sexual acts, including sexual intercourse and other forms of sexual coercion. Emotional/psychological abuse involves behaviors such as insults, humiliation, and intimidation, for example, destroying things like furniture, threats of harm, and taking away children.

Although IPV affects men and women, violence is mainly perpetrated by men against women, and women are much more affected than men. Worldwide estimates suggest that 70% of women experience some form of Gender Based Violence (GBV); the most common violence is IPV. For example, nearly 41% of women in the United States of America (USA) have experienced IPV, specifically physical injury, compared to 14% of men. The studies further suggest that 1 in 4 women and 1 in 7 men reported being the survivors of physical violence by an intimate partner, and nearly 1 in 6 assassination victims in the USA are killed by an intimate partner (Evans et al., 2020). Global estimates, according to WHO (2019), about 30% of women experience intimate partner violence, whereby countries such as Gambia, South Africa, the USA, and Tanzania have recorded an increasing trend of violence (Garcia et al., 2006; Oppong et al., 2022).

It is approximated that the IPV magnitude in Tanzania is 44%, which is 4 in 10 married women who have experienced spousal violence (Mosha et al., 2019). This statistic surpasses the global average, which is 30%. The statistics suggest the increased trend of IPV during the COVID-19 crisis, especially in the areas where the lockdown measures were adopted (Evans et al., (2020; Matoori et al.,2021) termed a pandemic within a pandemic COVID-19. This has increased attention from both developed and developing countries due to increased incidences of IPV in particular and their ultimate associated demographic and health consequences to both men and women (UNHCR, 2020).

IPV has significant severe consequences for physical, psychological, reproductive, and sexual health, including sexually transmitted infections, HIV, unplanned pregnancies, and abortion (Kazaura et al., 2016; Tiruye et al., 2020). IPV is a grave violation of human rights, no matter when, where, or how it occurs, and can result in mental, physical, and emotional effects and death in extreme cases. The children who witness the violence may suffer a range of behavioural and emotional disturbances, including depression, school dropouts and general health effects (Duvvury et al., 2013; Bensley, 2003), and several studies have found child abuse within the same household.

Literature in Tanzania shows that IPV is deeply enshrined in the community traditions, customs, and culture, and the incidences occur on a vast scale, taking different forms throughout women's and girls' lives, ranging from early marriage to rape between intimate partners and wife beating. While 30% of women who have been in a relationship reported that they had experienced IPV, the Tanzania Demographic Health Survey (TDHS) Report of 2010 indicates that about 44% of the ever-married women aged 15-49 experienced physical or sexual violence by an intimate partner. Again, the TDHS of 2016 and the UNHCR of 2020 indicate that nearly 50% of women and girls between the ages of 15 and 49 experience IPV in their lifetime and most of this violence occurs at the family level.

The first report of the "WHO Multi-country Study on Women's Health and Domestic Violence Against Women" (2005) conducted in 10 low- and middle-income countries, Tanzania included, indicates a high prevalence of IPV in all countries. The survey has also noted wide variation between and within countries. In addition, women in Tanzania are traditionally dominated by men, who usually have the power to decide on a sexual relationship and other household issues, while they are expected to be silent and accept violence as part of their lives (Chegere & Karamagi, 2020; Klugman et al., 2014). This implies male dominance, which was also found by Meena (2003) and Swai (2017), that men regard themselves as superior to females at the parliament and council levels.

SYNTHESIS

Several studies have indicated a relationship between IPV and the wish to control and maintain superiority in the family (Bostock et al., 2009) that the abuser exerts power over less powerful family members (Goode, 1971). On the other hand, the victim of the violence may slowly begin to modify his/her behaviour and slowly accept control to survive and avoid continued abuse. IPV is also associated with the resource power that gives the perpetrator power to control the victim's behaviour (Goode, 1971). Households with fewer resources are likely to experience more violence (Oyunbileg et al., 2009; Dasre et al., 2017). In this case, the violence is sustained through the victims' belief and response to the violence that they cannot meet the basic needs of their families unless they continue to stay in an abusive relationship (Wallace & Muroff, 2002). The abuse victims

depend on their abuser in particular circumstances, including economic dependency (Sheppard, 2019).

Higher education is more likely associated with decreased odds of experiencing IPV (Ward & Harlow, 2021; Kinyondo & Joseph, 2021), while low education is associated with the increased likelihood of men and women committing and experiencing violence, respectively. Other studies by Adjah and Agbemafle, 2016; Kizilgol and Ipek, 2018 show that women residing in urban areas, including big cities, have a high potential to experience violence compared to their counterparts' rural women. While young women are more likely to experience IPV (Kapiga et al., 2017), older women are more likely to tolerate IPV, which increases the likelihood of experiencing IPV among older women (Kizilgol & Ipek, 2018). Other documented factors associated with IPV include men's multiple sexual partners found in the study conducted in the North of Tanzania (Messersmith et al., 2021); traditional gender roles and family norms, especially in societies where patriarchal solid systems exist and women excluded from essential positions (Misafi, 2014; Swai, 2017) and history of domestic violence in childhood (Benseley et al., 2003). Children who witnessed IPV are likely to practice IPV in adulthood, and the regions with IPV are likely to continue experiencing the same.

Several efforts have been undertaken to address IPV in Tanzania, including prohibiting discrimination based on gender and setting out the fundamental rights and duties of citizens that protect these rights (WB, 2022). These efforts include developing policies and guidelines and adopting the Universal Declaration of Human Rights, the International Covenant on Political Rights, and the International Covenant on Socio-Economic and Cultural Rights. However, most of these policies and regulations are unclear about the strategies for eradicating IPV (Alsaker et al., 2018). This study adds to the existing knowledge on IPV by using logit regression approaches focusing on the regional variations in IPV prevalence and other factors, unlike other studies that only concentrated on factors that determine IPV. The study uses representative sample data from the Tanzania Demographic and Health Survey (TDHS) conducted in 2022 compared to other studies that have used small and not representative samples, such as Simmons et al. (2016); Kapiga et al. (2017); Joseph et al., N. (2020).

METHODS

Source of data

The data for this research were obtained from the Tanzania Demographic and Health Survey 2022. After the purpose of this paper was explained, Measure DHS was requested for the data. The survey covers both mainland Tanzania and Zanzibar.

Research design and unity of analysis

This study used a cross-sectional design and analysed secondary data from the 2022 Tanzania Demographic and Health Survey (TDHS). The TDHS includes comprehensive information on women's experiences with IPV, alongside demographic, socioeconomic, and household characteristics.

Data collection techniques

The TDHS data was collected using a questionnaire. Four questionnaires were used for the 2022 TDHS-MIS: the Household Questionnaire, the Woman's Questionnaire, the Man's Questionnaire, and the Biomarker Questionnaire. These questionnaires were grounded as per the DHS Program's standard Demographic and Health Survey (DHS) questionnaires. In addition, inputs were solicited from various stakeholders representing government ministries, departments, agencies, non-governmental organisations, and development partners, including religious organisations.

The household questionnaire captured all the members and visitors in the selected households. The questionnaires collected the attributes of each person listed, including age, sex, marital status, education level, and their relationship to the head of the household. For children under the age of 18, their parents' survival status was determined. The household questionnaire was also used to collect information related to the characteristics of the household's dwelling unit, including the source of water for the household, type of toilet facilities used by the household, materials used for the floor, roof, and exterior walls of their houses and ownership status of the house and other durable goods and assets.

Furthermore, a women's questionnaire was used to collect data from all women aged 15-49. The information collected from women included background information such as birth history and childhood mortality, experiences with gender violence, fertility preference, and information on reproductive history, including maternal and child health. A men's questionnaire was administered to all men aged 15-49 in every third household in the survey sample. The questionnaire collects the same information as the women's question, except for information on reproductive history or maternal and child health.

Sampling frame

The sample design for the 2022 TDHS-MIS was conducted in two stages to provide estimates for the entire country, including urban and rural areas in Tanzania, Mainland, and Zanzibar. The indicators such as contraceptive use and gender violence, the sample design allowed the estimation of indicators for each of the 31 regions in the country. The first stage of sampling involved selecting sample points (clusters) consisting of enumeration areas (EAs) delineated for the 2012 Tanzania Population and Housing Census. For this, a total of 629 clusters were selected.

In the second stage, households were selected using systematic sampling. Before the fieldwork, a complete household listing was done for all 629 selected clusters. From the list, 26 households were selected from each cluster using systematic sampling, yielding a representative probability sample of 16,354 households for the 2022 TDHS-MIS. Tanzania was divided into nine geographic zones to allow an estimate of geographic differentials for specific

demographic indicators. This enables comparisons across the Tanzania zones and from survey to survey.

All women aged 15-49, including usual residents and visitors in the household on the night before the survey, were included in the 2022 TDHS-MIS and were eligible for the interviews. In a subsample of half of all the households selected for the study, all men aged 15-49 were eligible for interviews if they were either usual residents or visitors in the household on the night before the survey.

Sample size

A representative probability sample of 16,312 households was selected for the survey, of which 15,907 were engaged. Within engaged households, 15,705 were interviewed, and the response rate was 99%. In the interviewed households, 15,699 women were eligible and interviewed, and the response rate was 97%. In the subsample of households selected for the male survey, 6,367 men were identified as eligible participants, 5,763 were interviewed, and the response rate was 91%.

Logit (Logistic) Regression Model and Analysis

Binary logistic regression analysis, also known as logit, is employed when the dependent variable is binary (dichotomous), using either categorical or a combination of categorical and continuous independent variables as explanatory factors (Anasel & Mlinga, 2014; Muya, Ilembo, & Anasel, 2024). A Logit (Logistic) regression method was employed to pinpoint predictors of Intimate Partner Violence (IPV) in Tanzania, modelling the likelihood of an individual facing IPV based on several predictor variables. This approach is ideal since the outcome variable—whether or not an individual has encountered IPV—is binary (yes/no).

The analysis used to analyse "Experienced any intimate partner violence either emotional, physical or sexual violence" in this paper is based on binary choice models, which describe the probability of experiencing intimate partner violence, experience/not experience. If we let $U_i(Y_i, X_i)$ be the utility function of a partner i, where Y_i is a dichotomous variable denoting whether the partner experiences intimate violence or not. The binary choices would, therefore, be 1 if Yes and 0 otherwise. X_i is a vector of the explanatory (independent) variables.

Theoretically, in specifying a Logit model, let $Y^*_i = \beta X_i + \mu_i$ where Y_i^* is a latent response variable, β is a vector of parameters to be estimated (Logistic regression coefficient), X_i is a vector of explanatory (independent) variables, and μ_i is the error term. In practice, Y_i^* is unobservable, and we observe only a dummy variable Y_i, which is defined in this case as;

$$Logit\ (Yi) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 ... \beta_p X_p$$

Estimate probability of partner experiences intimate violence or not is given by;

$$P(Yi) = \frac{\exp\{\beta_0 + \beta_1 X_1 + \beta_2 X_2 ... \beta_p X_p\}}{1 + \exp\{\beta_0 + \beta_1 X_1 + \beta_2 X_2 ... \beta_p X_p\}}$$

Where;

Yi is a dichotomous dependent variable called **logit** *Yi* (1=Experience IPV; 0=Not Experience IPV)

β_0 = Is the intercept

$\beta_1, \beta_2, \beta_p$ = Logistic regression coefficient of X_1, X_2, X_p respectively

X_1, X_2, X_p = Independent variables

Intercept is the value of *Yi* when all independent variables are zero. Regression coefficients describe the size of the contribution of the independent variable to the dependent variable. In addition, a positive regression coefficient (β) means that the explanatory variable increases the probability of the outcome. In contrast, a negative regression coefficient means that the variable decreases the likelihood of that outcome. Lastly, a large regression coefficient means that the risk factor strongly influences the probability of that outcome, while a near-zero regression coefficient means that the risk factor has little influence on the probability of that outcome. Linear regression analysis was performed to examine the contribution of the IPC determinants and identify the demographic and beyond factors influencing IPV across regions in Tanzania.

Before starting to build logit regression analysis, we checked for the scales' internal consistency using Cronbach's alpha test. The Cronbach's alpha test was conducted to ensure that all transformed variables measure the same underlying construct in Table 1. The Alpha coefficient values range from 1 to 5 to describe the reliability of factors extracted from categorical variables. The higher the score, the more reliable the generated scale: the 0.7 (70%) values indicate an acceptable reliability coefficient (Masue et al., 2013; Anasel, 2017; Mwakasangula & Mwita 2020; Anasel & Swai, 2021; Anasel, & Swai, 2023). Cronbach's alpha coefficient test was conducted to determine whether items in variables consistently measure the same characteristic.

Table 1: Cronbach's Alpha Coefficient Test

S/N	Variable	Number of Items	Cronbach's Alpha
1	Gender attitudes, beliefs, norms, and stereotypes	5	83.6
2	Experienced specific types of controlling behaviors*	5	58
3	Perceived behavioral control	4	71.9

*All variables were not measuring the same construct even if the item is deleted

The modelling starts with univariable analysis, whereby each predictor is first analyzed independently to assess its relationship with IPV. This was followed by multivariable logit regression, whereby the significant predictors from the univariable analysis were included in the multivariable logit regression model to estimate adjusted odds ratios (OR) and 95%

confidence intervals (CI). The logit regression model uses the enter method, also called forced entry or standard logistic regression; all predictor variables are entered into the model simultaneously. We initially include all variables in the model, and the least significant predictor is removed iteratively. The process continues until only statistically significant variables remain in the model based on 95% confidence intervals (CI) with a significance level less than or equal to 0.05.

Ethical consideration

The permission to use the Demographic and Health Survey data set was requested from Measure DHS by elaborating the purpose of the study and its contribution to IPV. Measure DHS was assured of not misusing the data, including avoiding wrong analysis and interpretation. Furthermore, the final report will be sent back to Measure DHS for further intervention, including sharing the results with the Tanzania government to implement findings and recommendations.

RESULTS

Demographic characteristics

A total of 2,169 couples from Tanzania were involved in the survey. Most respondents' occupations are Self-employed, accounting for 59%. The level of education for most husbands/partners and wives/respondents was primary education at 61.3% and 55%, respectively. In addition, the literacy rate indicates that the majority (69.8) of all respondents were able to read the whole sentence. Males headed most households (93.7%), while most respondents (74.1) were found to be married. The results also indicate that there was no variation in the distribution of the wealth index, with a minimum of 17.3% and a maximum of 22.9%. Most respondents were dominated by the age category of 20-24 (20.8%) and 25-29 (25.4%), and more than two-thirds (72.4%) of respondents reside in rural areas, as summarised in Table 2.

Table 2: Demographic Characteristics (N1564)

Variables	**Frequency**	**Percentage**
Women Occupation		
Non-Employed	731	33.7
Self Employed	1277	58.9
Employed	161	7.4
Partners' Occupation		
Non-Employed	206	9.5
Self Employed	1650	76.1
Employed	313	14.4
Highest education level		
No education	173	11.1
Primary	1099	70.3
Secondary	250	16.0
Higher	40	2.6
Sex of household head		
Male	2032	93.7
Female	137	6.3
Wealth index		
Poorest	376	17.3
Poorer	423	19.5
Middle	477	22.0
Richer	497	22.9
Richest	396	18.3
Literacy		
Cannot read at all	487	22.5
Able to read only parts of a sentence	166	7.7
Able to read the whole sentence	1514	69.8
Type of place of residence		
Urban	599	27.6
Rural	1570	72.4
Current marital status		
Married	1608	74.1
Living with partner	561	25.9
Women highest educational level		
No education	408	18.8
Primary	1192	55.0
Secondary	554	25.5
Higher	15	.7
Partners' educational level		
No education	269	12.4
Primary	1329	61.3
Secondary	518	23.9
Higher	53	2.4
Age in 5-year groups		
15-19	135	6.2
20-24	451	20.8
25-29	552	25.4
30-34	432	19.9
35-39	349	16.1
40-44	185	8.5
45-49	65	3.0

Determinants of IPV in Tanzania

The study aimed to examine factors that predict IPV across regions in Tanzania. IPV in this study is operationalised into three categories: emotional violence, physical violence and sexual violence. Emotional/psychological violence includes behaviours such as insults, constant humiliation, hurt and intimidation, for example, destroying things, threats of harm and taking away children. Physical violence includes slapping, hitting, kicking, trying to choke or burn, threatening, attacking with a knife, gun or other weapon and beating. Sexual violence, on the other hand, includes physical forms of having sexual

intercourse or forcing to perform any other sexual acts or force with threats to perform sexual acts. Thus, the results are presented to indicate the predictors of each category of IPV. The variable zone has a high correlation with the variable region. The zone was removed for analysis.

Determinants of Emotional Violence

Factors expected to determine emotional violence were entered in SPSS software using the enter method under logistic (logit) regression. The variable(s) with the highest p-value were removed first from the model, and the model fit and significant level were rechecked. The process was repeated until remained with the variables that were significant for the final model.

The results in Table 3 indicate that women's age, partners' education level, partners' occupation, and frequency of husband/partner being drunk are factors significantly (P<0.05) that predict emotional violence to women. Being in nine regions (Dodoma, Arusha, Tanga, Tabora, Kagera, Mwanza, Mara, Manyara and Kusini Unguja) significantly experience emotional violence. For example, an increase in women's one year reduces the likelihood of 0.943 to experience emotional violence at borderline significantly (P<0.082).

Table 3: Determinants of Emotional Violence

	B	S.E.	Wald	Sig.	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
Respondent's current age	-0.028	0.016	3.022	0.082	0.973	0.943	1.004
Partners' Educational level No Education (Ref)			9.017	0.029			
	1.012	0.341	8.824	0.003	2.75	1.411	5.362
Partners' Educational level - Secondary	0.842	0.448	3.534	0.06	2.321	0.965	5.583
Partners' Educational level - Higher	0.319	1.223	0.068	0.794	1.376	0.125	15.126
Partners' occupation - non-employed (Ref)			3.721	0.156			
Partners' occupation - Self Employed	0.93	0.483	3.707	0.054	2.534	0.983	6.527
Partners' occupation - Employed	0.848	0.589	2.077	0.15	2.335	0.737	7.401
Frequency of husband/partner being drunk - Never (Ref)			38.601	<.001			
Frequency of husband/partner being drunk - Often	2.015	0.529	14.488	<.001	7.504	2.658	21.182
Frequency of husband/partner being drunk - Sometimes	0.541	0.513	1.113	0.291	1.717	0.629	4.69
Dodoma	1.761	0.529	11.093	<.001	5.821	2.065	16.413
Arusha	1.393	0.701	3.944	0.047	4.027	1.018	15.926
Tanga	1.578	0.785	4.048	0.044	4.847	1.042	22.556
Tabora	1.681	0.592	8.061	0.005	5.37	1.683	17.134
Kagera	1.039	0.393	6.969	0.008	2.825	1.307	6.109
Mwanza	1.746	0.541	10.432	0.001	5.734	1.987	16.548
Mara	1.131	0.565	4.005	0.045	3.1	1.024	9.387
Manyara	1.774	0.815	4.737	0.03	5.897	1.193	29.147
Kusini Unguja	1.67	0.917	3.317	0.069	5.314	0.88	32.074
Constant	-2.757	0.9	9.388	0.002	0.063		

Women who are living with partners in primary education and secondary have a high likelihood of 2.75, 2.321 respectively, to experience emotional violence as compared with those with higher education and no education. The women married with self-employed partners have a high likelihood of 2.534 to experience emotional violence as compared to those employed. Women married to husbands/partners who often drink have the highest likelihood 7.504 of experiencing emotional violence. Women in the regions of Dodoma, Arusha, Tanga, Tabora, Kagera, Mwanza, Mara, Manyara, and Kusini Unguja are significantly more likely to experience emotional violence.

Determinants of Physical Violence

The same predictors that were used to predict emotional violence were also compared against physical violence. The same method was used, whereby the enter method was used in logistics regression. The variable (s) with the highest p-value was removed first from the model, and the model fit and significant level was rechecked. This was repeated until the model remained with the significant variables, as shown in Tables 4a and 4b. Physical violence has been divided into two categories: women who experienced any less severe violence by their husband/partner and women who experienced any severe violence by husband/partner.

Table 5 (a): Determinants of Physical Violence Experienced any less severe violence by husband/partner

	B	S.E.	Wald	Sig.	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
Age of household head	-0.059	0.015	15.604	<.001	0.943	0.916	0.971
Highest educational level - No education (Ref)			4.736	0.094			
Highest educational level - Secondary	-0.346	0.464	0.558	0.455	0.707	0.285	1.755
Highest educational level - Higher	-1.141	0.617	3.419	0.064	0.319	0.095	1.071
Literacy - Can not read at all (Ref)			4.583	0.205			
Literacy - Able to read only part of a sentence	0.886	0.417	4.51	0.034	2.425	1.071	5.493
Literacy - Able to read whole sentence	0.359	0.329	1.192	0.275	1.432	0.752	2.727
Age of respondent at 1st birth	-0.042	0.036	1.319	0.251	0.959	0.893	1.03
Partners' occupation - non-employed (Ref)			6.709	0.035			
Partners' occupation - Self Employed	1.207	0.467	6.68	0.01	3.343	1.339	8.348
Partners' occupation - Employed	1.205	0.574	4.41	0.036	3.337	1.084	10.277
Frequency of husband/partner being drunk - Never (Ref)			32.009	<.001			
Frequency of husband/partner being drunk - Often	1.316	0.48	7.532	0.006	3.729	1.457	9.545
Frequency of husband/partner being drunk - Sometimes	-0.124	0.454	0.075	0.785	0.883	0.363	2.15
Arusha	1.704	0.769	4.908	0.027	5.495	1.217	24.808
Tanga	1.862	0.867	4.612	0.032	6.435	1.177	35.193
Tabora	1.867	0.737	6.424	0.011	6.469	1.527	27.403
Kagera	0.694	0.399	3.021	0.082	2.001	0.915	4.376
Mara	1.911	0.649	8.66	0.003	6.757	1.893	24.118
Songwe	-0.796	0.463	2.949	0.086	0.451	0.182	1.119
Constant	1.205	1.101	1.198	0.274	3.336		

Age of household head, age of women at first birth, partners' occupation, frequency of husband/partner's drinking habit, and residing in Tanga, Tabora, Mara, and Songwe are the factors that determine less and more severe physical violence to women significantly (P<0.05). Women's education level, literacy level, and residing at Arusha and Kagera are factors that predict that women experience less physical violence. In contrast, women's current age and residing in Kilimanjaro are factors that explain severe physical violence significantly (P<0.05). For example, women married with self-employed partners have the highest likelihood of 3.343 to experience less physical violence and the likelihood of 4.05 to experience severe physical violence as compared to those employed significantly. Women residing at Tanga, Kilimanjaro, Mara, and Tabora have the highest likelihood of 11.140, 10.317, 9.358, and 6.469, respectively, to experience physical violence.

Table 4 (b): Determinants of Physical Violence Experienced any severe violence by husband/partner

	B	S.E.	Wald	Sig.	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
Respondent's current age	0.441	0.115	14.675	<.001	1.555	1.24	1.949
Age in 5-year groups - 15 - 19 (Ref)			15.434	0.017			
Age in 5-year groups - 20 - 24	-0.965	1.265	0.581	0.446	0.381	0.032	4.552
Age in 5-year groups - 25 - 29	-3.057	1.505	4.125	0.042	0.047	0.002	0.898
Age in 5-year groups - 30 - 34	-4.763	1.893	6.332	0.012	0.009	0	0.349
Age in 5-year groups - 35 - 39	-7.141	2.356	9.189	0.002	0.001	0	0.08
Age in 5-year groups - 40 - 44	-8.701	2.852	9.307	0.002	0	0	0.045
Age in 5-year groups - 45 - 49	-9.669	3.343	8.367	0.004	0	0	0.044
Age of household head	-0.085	0.026	10.588	0.001	0.918	0.872	0.967
Age of respondent at 1st birth	-0.168	0.053	10.017	0.002	0.845	0.762	0.938
Partners' occupation - non-employed (Ref)			5.562	0.062			
Partners' occupation - Self Employed	1.399	0.683	4.199	0.04	4.05	1.063	15.438
Partners' occupation - Employed	0.736	0.808	0.83	0.362	2.087	0.429	10.164
Frequency of husband/partner being drunk - Never (Ref)			21.519	<.001			
Frequency of husband/partner being drunk - Often	1.921	0.81	5.629	0.018	6.829	1.397	33.387
Frequency of husband/partner being drunk - Sometimes	0.537	0.808	0.443	0.506	1.712	0.351	8.335
Tanga	2.411	0.811	8.827	0.003	11.14	2.271	54.641
Kilimanjaro	2.334	0.894	6.819	0.009	10.317	1.79	59.469
Tabora	1.518	0.704	4.652	0.031	4.564	1.149	18.135
Mara	2.236	0.655	11.641	<.001	9.358	2.59	33.811
Songwe	-1.422	0.793	3.217	0.073	0.241	0.051	1.141
Constant	-6.981	2.674	6.815	0.009	0.001		

Determinants of Sexual Violence

The last model was to determine the factors that predict sexual violence. The same procedure used in the previous model was applied. Table 5 indicates that wealth index, women's age at first birth, women's occupation, and residing at Tabora, Kagera, Mara, Katavi, and Songwe explain sexual violence significantly (P<0.05). The wealthiest women have the highest likelihood of 3.194 to experience sexual violence significantly (p<0.011) as compared to another wealth index, which is not statistically significantly associated with sexual violence. The same trend appeared in sexual violence whereby women married with self-employed partners have a likelihood of 1.702 to experience sexual violence. Women residing at Kagera and Mara have the highest likelihood of 4.770 and 4.356, respectively, to experience sexual violence.

Table 5: Determinants of Sexual Violence

	B	S.E.	Wald	Sig.	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
Wealth index combined - Poorest (Ref)			7.894	0.096			
Wealth index combined - Poorer	0.611	0.437	1.954	0.162	1.842	0.782	4.34
Wealth index combined - Middle	0.346	0.452	0.586	0.444	1.413	0.583	3.428
Wealth index combined - Richer	0.198	0.498	0.158	0.691	1.218	0.459	3.232
Wealth index combined - Richest	1.161	0.456	6.495	0.011	3.194	1.308	7.802
Age of respondent at 1st birth	-0.071	0.031	5.279	0.022	0.932	0.877	0.99
Women's occupation - Non Employed			6.634	0.036			
Women's occupation - Self Employed	0.532	0.213	6.251	0.012	1.702	1.122	2.583
Women's occupation - Employed	0.605	0.372	2.646	0.104	1.831	0.883	3.796
Tabora	0.672	0.397	2.871	0.09	1.959	0.9	4.264
Kagera	1.562	0.276	32.023	<.001	4.77	2.777	8.195
Mara	1.472	0.346	18.079	<.001	4.356	2.211	8.585
Katavi	0.644	0.394	2.667	0.102	1.904	0.879	4.123
Songwe	-1.727	1.013	2.903	0.088	0.178	0.024	1.296
Constant	-1.846	0.633	8.515	0.004	0.158		

DISCUSSION

Three types of IPV, emotional violence, physical violence and sexual violence, were analyzed in this study to understand the factors associated with IPV. Partners' occupation, frequency of husband/partner being drunk, and women's current age were found to be the predictors of both emotional and physical. In contrast, the age of women at first birth was a predictor for physical violence. This result indicates that IPV is deeply enshrined in the community traditions, customs, and culture, and it takes different forms throughout women's and girls' lives. Cultural factors that support male dominance and patriarchal beliefs place women in vulnerable and submissive positions and influence the occurrence of IPV (Do et al., 2013).

IPV was indicated to be common in some regions, such as Tabora, Kagera and Mara, where women have been experiencing emotional, physical and sexual violence. The study has also noted wide variation between and within countries, and the violence is much higher in some regions. This supports the study conducted in 10 low and middle-income countries in 2015, where regional differences in IPV were also noted. This is associated with a belief of the community in these regions where IPV is viewed as maladaptive, that is, abusive acts that are there to exist (Do et al., 2013; Kinyondo et al., 2021). Strong patriarchal systems are characterised in the lake zone where Mara and Kagera are located; the history of domestic violence in childhood is common; this corroborates the study done by Kinyondo, Ntegwa, & Miho, 2021, who used the 2015/16 Tanzania Demographic and Health Survey.

A person who observed domestic violence as part and parcel of their life during childhood is likely to practice the same in their adulthood. This goes together with the low rate of disclosure among women and girls, the survivors of gender-based violence and IPV, where cultural beliefs stigmatize disclosure and complicate the identification and tracking of instances related to domestic violence, gender-based violence and IPV (Ahrens et al., 2010). The study by Ahrens conducted in 2010 further clarifies that taboos against talking about sex and fear of more violence justify acts of sexual assault and IPV and maintain silence when such acts occur.

The studies by Benseley et al. (2003) and Anasel (2017) found men to be the decision-makers in all family welfare, including contraceptive use and the number of children the family should have. Women have no choice but to use birth control or decide when to have another child, which indicates strong male dominance, as pointed out by Meena (2003) and Swai (2017). If women cannot decide on the use of family planning, then it increases the chances of unplanned pregnancies and abortion, as indicated by Kazaura (2016). In addition, the study by Anasel (2017) showed that some women were bitten by their husbands and divorced only because they had used contraceptives without prior permission from their husbands.

Moreover, women married with partners' who were self-employed were more likely to experience emotional and physical violence compared to those married with partners who were employed. This implies that women married to non-employed or self-employed partners have a high potential of being victims of violence. These findings support Ward & Harlow (2021), Kinyondo and Joseph (2021), and Gedikli, Popli, & Yilmaz (2023), who found that employment status is associated with the increased likelihood of men committing violence. Men in Mara, which is one of the regions where all forms of violence are present, were also indicated to have a relatively low awareness, which influenced the acceptance rate of family planning (Anasel, 2017).

CONCLUSION AND RECOMMENDATIONS

The study examined the determinants of IPV, which were measured into three categories: emotional violence, physical violence, and sexual violence. Women's age, partners' education level, partners' occupation, and frequency of husband/partner being drunk are factors that predict emotional violence. Age of household head, age of women at 1st birth, partners' occupation, women's current age, frequency of husband/partner's drinking habit, women's education level, and literacy level are factors that predict less and more severe physical violence. Wealth index, women's age at first birth, and women's occupation explain the sexual violence. Residing in Dodoma, Arusha, Tanga, Tabora, Kagera, Mwanza, Mara, Manyara, Kusini Unguja, Tanga, Songwe, Kilimanjaro, and Katavi has a high likelihood of experiencing IPV.

The intervention to address IPV should first focus on changing men's and women's attitudes and beliefs. Change of attitude

and belief should be to both men and women who believe that wife beating is okay, and that perpetuates the increase of IPV. This study recommends an emphasis on archiving employment, especially for men who reside in regions where IPV has been expected, to reduce the likelihood of men committing violence. Households should also be educated to control children's witnesses of violence to reduce the possibility of practising the same in adulthood.

Abbreviations

DHS stands for Demographic and Health Survey; GBV stands for Gender-Based Violence; IPV stands for Intimate Partner Violence; TDHS stands for Tanzania Demographic and Health Survey; USA stands for United States of America; and WHO stands for World Health Organization and Survey.

Ethics and consent

This study utilized secondary data from the Demographic and Health Surveys (DHS) Program, specifically the 2022 Tanzania Demographic and Health Survey. The DHS Program follows strict ethical guidelines, and the survey protocols were reviewed and approved by the Institutional Review Board of ICF International and the relevant national ethics committees in Tanzania. The analysis complied with the ethical principles outlined in the Declaration of Helsinki.

Acknowledgments

The authors wish to thank Measure Demographic and Health Surveys for allowing the use of the Tanzania Demographic and Health Survey 2016/2017 dataset that covers both mainland Tanzania and Zanzibar.

Author contributions

Mackfallen Anasel requested data from MEASURE DHS, analysed the data and wrote the findings in consultation with the other author. Idda Swai conceived, designed the study and edited the manuscript.

Disclosure statement

The authors have no conflict of interest related to the study and the manuscript.

Funding information

This manuscript did not receive funding for publication.

REFERENCES

Ahrens, C. E., Rios-Mandel, L. C., Isas, L., & del Carmen Lopez, M. (2010). Talking about interpersonal violence: Cultural influences on Latinas' identification and disclosure of sexual assault and intimate partner violence. *Psychological Trauma: Theory, Research, Practice, and Policy*, *2*(4), 284.

Alsaker, K., Moen, B. E., Morken, T., & Baste, V. (2018). Intimate partner violence associated with low quality of life-a cross-sectional study. *BMC women's health*, *18*(1), 1-7.

Anasel, M. G. (2017). Family planning programme implementation: Differences in Contraceptive Prevalence Rates across Local Government Authorities in Tanzania. http://www.rug.nl/research/portal/files/40480908/Complete_thesis.pdf.

Anasel, M. G., & Mlinga, U. J. (2014). Determinants of contraceptive use among married women in Tanzania: Policy implication. *Etude de la Population Africaine*, *28*(2), 976. http://www.bioline.org.br/pdf?ep14043

Anasel, M., & Swai, I. L. (2021). Use of Data in Health Planning Process: Stories from Council Health Management Teams in Tanzania. *eajahme*, *5*(5).

Anasel, M. G., & Swai, I. L. (2023). Factors to determine the adoption of online teaching in Tanzania's Universities during the COVID-19 pandemic. *Plos one, 18(10), e0292065*.

Bensley, L., Van Eenwyk, J., & Simmons, K. W. (2003). Childhood family violence history and women's risk for intimate partner violence and poor health. *American journal of preventive medicine, 25(1), 38-44.*

Bostock, J. A. N., Plumpton, M., & Pratt, R. (2009). Domestic violence against women: Understanding social processes and women's experiences. *Journal of Community & Applied Social Psychology, 19(2), 95-110.*

Chegere, M. J., & Karamagi, I. J. (2020). Intimate partner violence and labour market outcomes in Tanzania. *African Journal of Economic Review, 8(2), 82-101*.

Dasre, A., Greulich, A., & Ceren, I. (2017). Combating domestic violence against women in Turkey. The role of women's economic empowerment.

Do, K. N., Weiss, B., & Pollack, A. (2013). Cultural beliefs, intimate partner violence, and mental health functioning among Vietnamese women. *International perspectives in psychology, 2(3), 149-163*.

Duvvury, N. Intimate partner violence: Economic costs and implications for growth and development 2013. *NUI Gallway*.

Evans, M. L., Lindauer, M., & Farrell, M. E. (2020). A pandemic within a pandemic—intimate partner violence during Covid-19. *New England journal of medicine, 383(24), 2302-2304*.

Garcia-Moreno, C., Jansen, H. A., Ellsberg, M., Heise, L., & Watts, C. H. (2006). Prevalence of intimate partner violence: findings from the WHO multi-country study on women's health and domestic violence. *The lancet*, *368*(9543), 1260-1269.

Gedikli, C., Popli, G., & Yilmaz, O. (2023). The impact of intimate partner violence on women's labour market outcomes. *World Development*, *164*, 106166.

Goode, W. J. (1971). Force and violence in the family. *Journal of Marriage and the Family, 624-636.*

Joseph, M., & Msenda, N. (2020). Women's attitudes towards wife-beating in Tanzania: Evidence from the 2015/16 National Demographic and Health Survey. *Journal of Education, Humanities and Sciences, 9(1), 92-110.*

Kapiga, S., Harvey, S., Muhammad, A. K., Stöckl, H., Mshana, G., Hashim, R., ... & Watts, C. (2017). Prevalence of intimate partner violence and abuse and associated factors among women enrolled into a cluster randomised trial in northwestern Tanzania. *BMC Public Health, 17(1), 1-11.*

Kazaura, M. R., Ezekiel, M. J., & Chitama, D. (2016). Magnitude and factors associated with intimate partner violence in mainland Tanzania. *BMC Public Health, 16(1), 494. https://doi.org/10.1186/s12889-016-3161-3*

Kinyondo, A., & Joseph, M. (2021). Women's employment status and domestic violence in Tanzania: How do they link? *International Journal of Social Welfare, 30(2), 216-225.*

Kinyondo, A., Ntegwa, M. J., & Miho, A. (2021). Determinants of intimate partner violence in Tanzania: evidence from the national demographic and health survey. *African Journal of Economic Review*, *9*(4), 200-222.

Kizilgol, O. A., & Ipek, E. (2018). An analysis on domestic violence against women in Turkey: Multinomial Logit Model. *Business and Economics Research Journal, 9(3), 715-734*.

Klugman, J., Hanmer, L., Twigg, S., Hasan, T., McCleary-Sills, J., & Santamaria, J. (2014). *Voice and agency: Empowering women and girls for shared prosperity*. World Bank Publications.

Masue, O. S., Swai, I. L., & Anasel, M. G. (2013). The Qualitative-Quantitative 'Disparities' in Social Science Research: What Does Qualitative Comparative Analysis (QCA) Brings in to Bridge the Gap? *Asian Social Science, 9(10), 211.*

Matoori, S., Khurana, B., Balcom, M. C., Froehlich, J. M., Janssen, S., Forstner, R., King, A. D., Koh, D.-M., & Gutzeit, A. (2021). Addressing intimate partner violence during the COVID-19 pandemic and beyond: How radiologists can make a difference. *European Radiology, 31(4), 2126–2131. https://doi.org/10.1007/s00330-020-07332-4*

Meena, R. (2003). The Politics of Quota in Tanzania. A Paper Presented at the International Institute of Democracy and Electoral Assistance. *IDEA Publication*.

Messersmith, L. J., Halim, N., Steven Mzilangwe, E., Reich, N., Badi, L., Holmes, N. B., ... & Kawemama, P. (2021). Childhood trauma, gender inequitable attitudes, alcohol use and multiple sexual partners: correlates of intimate partner violence in northern Tanzania. *Journal of interpersonal violence, 36(1-2), 820-842.*

Misafi, H.P. (2014), Women's participation in decentralized local governance: the case of pastoral and non-pastoral women in Kondoa local authority, Tanzania. *Afrika Fokus, 27(2), 87–97.*

Mosha, I. H., Ezekiel, M., Onesmo, W., & Sabasaba, A. (2019). Prevalence and predictors of intimate partner violence among women living in informal settlements in Iringa Tanzania: a cross sectional study. *Tanzania Journal of Development Studies, 17(1), 1-18.*

Mwakasangula E & Mwita K (2020). Relationship between Occupational Stress and Job Satisfaction among Teachers in Tanzania Public Primary Schools. *Journal of co-operative and business studies, 5(1), 96-103.*

Muya, M., Ilembo, B. and Anasel, M. (2024), "Predictive accuracy of the logit model to determine factors affecting delivery and postnatal care services utilization in Tanzania", *International Journal of Health Governance*, Vol. ahead-of-print No. ahead-

of-print. https://doi.org/10.1108/IJHG-08-2024-0100

Oppong, *M. Yaa Pokua Afriyie; Haq, Inaam Ul; Todd, Gemma Joan Nifasha (2022). Tanzania Gender Assessment (English). Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/099155103312251069/P1760510ca289d0400a40e03f6408826f07*

Oyunbileg, S., Sumberzul, N., Udval, N., Wang, J. D., & Janes, C. R. (2009). Prevalence and risk factors of domestic violence among Mongolian women. *Journal of Women's Health, 18(11), 1873-1880.*

Sheppard, A. V. (2019). The nexus between child protection and gender-based violence programming; the impact for displaced adolescent girls in Jordan.

Violence, G. B. (2016). Lessons from the Gender-Based Violence Initiative in Tanzania.

Swai, I. L. (2017). The relative participation and influence of female councillors in the decisions of the councils in Tanzania. https://research.rug.nl/en/publications

Tiruye, T. Y., Chojenta, C., Harris, M. L., Holliday, E., & Loxton, D. (2020). Intimate partner violence against women and its association with pregnancy loss in Ethiopia: evidence from a national survey. *BMC women's health, 20(1), 1-11.)*

Division of International Protection, UNHCR. (2021). UNHCR Policy on the Prevention of, Risk Mitigation, and Response to Gender-Based Violence (GBV). *International Journal of Refugee Law*, *33*(3), 506-527.

Wallace, J. M., & Muroff, J. R. (2002). Preventing substance abuse among African American children and youth: Race differences in risk factor exposure and vulnerability. *Journal of Primary Prevention, 22, 235-261*.

Ward, C. L., & Harlow, S. (2021). Respect and intimate partner violence: a cross-sectional study using DHS data in Kenya. *BMJ open, 11(9), e046069.*

WHO (2019). Respect women: preventing violence against women. Geneva: World Health Organization.

World Health Organization. (2019). *Violence against women: intimate partner and sexual violence against women: evidence brief* (No. WHO/RHR/19.16). World Health Organization.

World Bank. March 2022. Tanzania GBV Assessment. © World Bank.