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Regular Article

Disability & protective sex: Women's disability status and negotiation for protective sex in Nigeria

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ABSTRACT

This paper examines the interrelationship between women's disability status and their ability to negotiate for protective sex in Nigeria, where women with disabilities face gender-based and disability-related marginalisation, which is associated with limited access to resources and well-being. The study uses data from the 2018 Nigeria Demographic and Health Survey. The analysis focuses on 15–49-year-old currently married or cohabiting women, using the Washington Group Short Set (WG-SS) to measure disability status and multinomial logistic regression to examine factors associated with women's negotiation ability. Findings show that approximately 5% of married or cohabiting women were identified as having disabilities. The primary objective is to estimate the association between disability status and women's negotiation ability for protective sex among currently married or cohabiting women aged 15-49 in the 2018 Nigeria DHS. Married or cohabiting women with disabilities are marginally associated with a higher likelihood to negotiate for either condom use or refuse sex (moderate ability to negotiate) compared to those without disabilities (aRRR = 1.21, $p < 0.080$, 95% CI: 0.96 – 1.52), a 21% higher likelihood. Conversely, while descriptive data suggested a higher likelihood of 'high' negotiation ability among women with disabilities, this association was not statistically significant in the adjusted model (aRRR = 1.04, $p = 0.685$), indicating that socioeconomic factors such as wealth and education largely account for this observed difference. Ability to negotiate is associated with education (where women with post-secondary education had a higher likelihood of ability to negotiate for protective sex), household wealth (where women in higher wealth quintiles exhibited greater negotiation ability), region of residence, and religious affiliation (where Muslim women were less likely to negotiate for protective sex), and participation in household decision-making. These findings underscore the urgent need for disability-inclusive sexual and reproductive health programs, empowerment interventions, and efforts to challenge stigma and discrimination. To protect the rights and promote equity for women with disabilities, existing policies and laws must be implemented with cultural sensitivity.

1. Introduction

The pursuit of sexual and reproductive health (SRH) equity necessitates an important understanding of the intersecting vulnerabilities that shape women's experiences, especially within contexts marked by socio-cultural complexities and limited resources (Bolarinwa et al., 2025; Crenshaw, 1991). In Nigeria, a country characterised by diverse ethnic and cultural norms, the intersection of disability and power dynamics creates unique challenges for women seeking to assert their sexual autonomy and negotiate for protective sex (Feyisetan & Oyediran, 2020).

Disability, as defined by the World Health Organisation [(WHO 2011]), covers impairments, activity limitations, and participation restrictions resulting from the interaction between health conditions and environmental factors. In Nigeria, the prevalence of disability is significant, though often underreported due to stigma and inadequate data collection (Federal Ministry of Women Affairs and Social Development, 2018). The WHO's (2011) World Report on Disability indicates that of the approximately 25 million Nigerians living with a disability, an estimated 13 million are women and girls. Women with disabilities face a compound burden of discrimination, experiencing both gender-based and disability-related marginalisation (Odimegwu et al., 2025), which

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manifests in limited access to education, employment, healthcare, and social inclusion, significantly affecting their overall well-being (Groce et al., 2011).

Negotiating protective sex, which includes using condoms, consistent partner testing, and open communication about sexual health, is fundamental to preventing sexually transmitted infections (STIs) and unintended pregnancies (Joint United Nations Program on HIV/AIDS (UNAIDS) 2018; Imo et al., 2022). However, many women face structural obstacles to agency and autonomy, hindering their ability to negotiate for protective sex. In cultures with deeply rooted societal norms and power imbalances, such as Nigeria, this is particularly evident, as traditional expectations often dictate women's submissive roles in sexual relationships, prioritising husbands' desires over their own needs (Feyisetan & Oyediran, 2020; Oyediran et al., 2011). These power imbalances are worsened by economic dependency, fear of violence, and limited access to information and resources (Hughes et al., 2012; Odimegwu et al., 2025; Oyediran & Feyisetan, 2017; Oyediran et al., 2011; Tenkorang, 2012; Ung et al., 2014).

The intersection of disability and gender further complicates sexual negotiation, potentially leading to heightened vulnerability to sexual violence and exploitation, which undermines the agency and autonomy of women with disabilities (Odimegwu et al., 2025; Tepper, 2000). Disability-related stigma and discrimination can lead to social isolation, reduced access to support networks, and internalised negative stereotypes, all of which can impede the development of negotiation skills and self-efficacy (Grech, 2016; Oladunni, 2012). Physical, sensory, and communication impairments can also create additional barriers; for example, women with mobility impairments may face challenges in accessing condoms, while those with communication impairments may struggle to express their concerns or preferences (Campbell, 2017). The reliance on caregivers can also create power imbalances, limiting women's ability to make independent decisions about their sexual health.

Nigeria's diverse socio-cultural context presents unique challenges to the sexual and reproductive health of women with disabilities. Varying cultural norms and beliefs can significantly be associated with attitudes towards sexuality and disability, with traditional beliefs often contributing to stigma, discrimination, social exclusion, and limited opportunities (Brodwin & Frederick, 2010; Makinde et al., 2017; Ndoni, 2023; Oyediran, 2016). Religious institutions also play a significant role in shaping attitudes towards sexuality and gender, sometimes advocating for conservative views that create barriers to accessing sexual and reproductive health services, especially for women perceived as deviating from traditional norms, including women with disabilities (Ndoni, 2023; Oyediran et al., 2020).

Women with disabilities in Nigeria face profound consequences due to limited access to protective sex, leading to a higher risk of STIs, unintended pregnancies, and increased vulnerability to sexual violence and exploitation (Oladunni, 2012). Furthermore, women with disabilities in Nigeria often encounter gender-based discrimination and restricted sexual autonomy, significantly associated with their sexual health (Bolarinwa et al., 2025).

Existing research specifically examining the sexual experiences of women with disabilities in Nigeria, particularly regarding access to protective sex, remains limited. However, a recent qualitative study in Lagos revealed that women with disabilities have experienced sexual violence, including physical assault and rape, which they attributed to their disability (Bolarinwa et al., 2025). Participants in this study felt their disability hindered their ability to escape or seek help (Bolarinwa et al., 2025). This vulnerability can also lead to the deprivation of sexual rights by partners if women are unable to meet certain sexual expectations. Barriers to accessing support for sexual violence included abuse, misunderstanding from others, and challenges inherent to their disability. The extent to which women with disabilities in Nigeria can negotiate for protective sex is not well understood. Few quantitative studies on the sexual behaviour of women with disabilities exist, and those that do are often based on small, unrepresentative samples (Aderemi & Pillay, 2013; Oladunni, 2012; Olaleye et al., 2007).

This study is motivated by the urgent policy need to address SRHR inequities and advance disability inclusion, particularly concerning sexual autonomy in Nigeria. Previous studies have fragmented their focus on gender or disability separately, leaving a critical knowledge gap regarding the specific, intersectional challenges faced by women with disabilities in negotiating safer sex practices at a national level. The 2018 Nigeria Demographic and Health Survey (NDHS) data offer a valuable and unique opportunity to address this gap by linking disability status (measured using the internationally comparable Washington Group Short set (WG-SS)) with a nuanced, three-level measurement of protective sex negotiation ability. The methodological contribution lies in moving beyond simplistic binary outcomes to capture varying degrees of agency, which is crucial for evidence-based policymaking. This analysis is crucial for policymakers and implementers, as its findings can inform the design of culturally sensitive and disability-inclusive sexual and reproductive health programs.

This paper examines the interrelationship between women's disability status and their ability to negotiate for protective sex in Nigeria, focusing on the socio-cultural factors contributing to their challenges. Examining this critical issue, the study aims to contribute to evidence-based interventions and policies that promote the sexual and reproductive health and rights of women with disabilities in Nigeria. This study is grounded in the recognition that women with disabilities are often overlooked in mainstream sexual and reproductive health research and programs, and by shedding light on their experiences, it aims to contribute to a more inclusive and equitable approach to sexual and reproductive health in Nigeria. Ultimately, the findings of this research have the potential to inform the development of culturally sensitive and disability-inclusive interventions, challenge stigma and discrimination, and empower women with disabilities to assert their sexual autonomy.

The primary objective of this study is to estimate the association between disability status (measured with WG-SS) and women's negotiation ability for protective sex (a three-level outcome) among currently married or cohabiting women aged 15–49 in the 2018 Nigeria DHS; and to examine whether education, household decision-making, wealth, region, residence, parity, and religion are associated with this outcome.

2. Theoretical framework

The study of women's disability status and its association with their ability to negotiate for protective sex in Nigeria is inherently complex, necessitating a framework that acknowledges the understanding of various social, cultural, and individual factors. This study adopts an integrated theoretical approach, drawing primarily from the social-ecological model (SEM) and intersectionality theory (Crenshaw, 1989; McLeroy et al., 1988), to provide a comprehensive understanding of this issue.

The Social-Ecological Model, developed by McLeroy et al. (1988), suggests that health behaviours are associated with a complex interaction of factors at multiple levels: individual, interpersonal, structural, community, and policy (Glanz et al., 2008).

- Individual level: Factors such as age, education, and personal beliefs about health and gender roles can be associated with a woman's ability to negotiate for protective sex. For instance, a woman's level of education may be related to her knowledge of sexual and reproductive health, her self-efficacy in communicating her needs, and her access to resources. (Covariates: Age, Education, Parity).
- Interpersonal/Household level: Power dynamics within relationships, communication patterns with partners, and social support from family and peers play a significant role. Women in relationships characterised by unequal power dynamics may find it challenging to

assert their autonomy in sexual decision-making. (Covariates: Household wealth, Participation in household decision-making).

- Community/Structural/Normative level: The capacity of women with disabilities to negotiate protective sex is not solely dependent on individual skills; rather, it is profoundly shaped by broader community and systemic factors (Bolarinwa et al., 2025; Dawkins et al., 2021; Meade et al., 2015). This includes prevailing cultural norms, religious beliefs, and community attitudes towards sexuality and disability (Bolarinwa et al., 2025; Crenshaw, 1991; Dawkins et al., 2021). In diverse settings like Nigeria, where various ethnic and religious groups hold distinct views on these sensitive topics, women with disabilities often encounter unique challenges stemming from stigma and discrimination (Bolarinwa et al., 2025). When healthcare facilities are not equipped to meet the needs of women with disabilities, or when healthcare providers lack disability awareness, women with disabilities may be less likely to seek out and receive essential sexual and reproductive health services. Finally, policies and guidelines at the national and sub-national levels can either promote or hinder the rights of women with disabilities. Laws and policies that protect women from discrimination and violence, and that ensure access to education, healthcare, and social services, are essential for creating an enabling environment for sexual autonomy. (Covariates: Place of residence, Region of residence, Religion).

While the SEM provides a useful framework for understanding the multiple levels of factors associated with health behaviours, Intersectionality Theory, developed by Crenshaw (1989), offers a critical lens for examining how these levels of factors interact in the lives of women with disabilities. Intersectionality Theory emphasises that individuals possess multiple social identities (e.g., gender, race, class, disability) that intersect to create unique experiences of subjugation and privilege. In the context of this study, Intersectionality Theory highlights how the intersection of gender and disability creates a distinct form of vulnerability that compounds the challenges women with disabilities face in negotiating for protective sex. Women with disabilities in Nigeria experience both gender-based discrimination, which limits women's autonomy, and disability-related stigma, which can lead to social exclusion and reduced access to resources. This intersectional disadvantage can result in increased vulnerability to sexual violence, limited access to education and economic opportunities, and restricted decision-making power within relationships, all of which can undermine their ability to negotiate for safer sexual practices.

The theoretical framework underscores the importance of adopting a holistic and multi-faceted approach to address the complex interplay of factors that are associated with the ability of women with disabilities to negotiate for protective sex. Integrating the SEM with Intersectionality Theory, the study aims to provide a nuanced understanding of the individual, interpersonal, community, structural, and policy-level factors that shape women's experiences, and how these factors intersect to create unique challenges for women with disabilities in Nigeria.

3. Data and method

3.1. Data

This analysis further examines the 2018 NDHS data, a nationally representative cross-sectional survey using a stratified cluster probability sampling design. Clusters were the primary sampling units, and households within each selected cluster were randomly sampled (National Population Commission (NPC) [Nigeria] and ICF, 2019). Focusing on a subsample of currently married or cohabiting women interviewed in these households, this analysis incorporates disability status, a key explanatory variable collected through the household module for all members aged five years and above. Consequently, the household member recode (PR) and the individual recode (IR) were merged for this analysis. Disability data, extracted from the household module, were linked with the women's questionnaire using the line number as the common merging key (NPC & ICF, 2019). Given that the outcome variable is women's ability to negotiate for protective sex, and related questions were posed only to those in stable relationships, the analysis includes only married or cohabiting women aged 15–49. Data were obtained from the DHS website (https://dhsprogram.com/data/dataset/Nigeria_Standard-DHS_2018.cfm) before the USAID program's discontinuation. The final analytic sample comprised 18,075 women. This sample was derived by excluding respondents who were not currently in a union, as well as those with missing data regarding disability status or sexual negotiation.

3.2. Variable measurements

Measuring Negotiation for Protective Sex.

This study assessed the outcome variable, "women with disabilities' negotiated ability for protective sex," using two questions:

- Could you say no to your [husband/partner] if you do not want to have sexual intercourse?
- Could you ask your [husband/partner] to use a condom if you wanted him to?

Response options were "1 = No," "2 = Yes," and "3 = Don't know/not sure/depends." For this analysis, women who answered "don't know/not sure/depends" were grouped with those who answered "no." This approach emphasises that consistent and decisive action is crucial for protection against STIs/HIV and unintended pregnancy, reflecting a lack of self-efficacy or agency necessary for effective negotiation.

A new variable, derived from these two questions, established three categories of women's negotiation ability for protective sex:

1. High ability to negotiate for protective sex (negotiated ability to refuse sex AND ask for condom use) represents high agency.
2. Moderate ability to negotiate for protective sex (negotiated ability to either refuse sex OR ask for condom use) signifies moderate/partial agency.
3. Lack of ability to negotiate for protective sex indicates low or no agency.

This three-category measurement of ability to negotiate for protective sex offers a more comprehensive and insightful approach than the simplistic binary often used in previous studies (Feyisetan & Oyediran, 2020; Ganle et al., 2020; Pradhan & De, 2025; Seidu et al., 2023; Singh et al., 2024; Tenkorang, 2012). This refined categorisation provides a better understanding, stronger theoretical grounding, and significant practical and policy implications.

The traditional two-category system (ability vs. no ability to negotiate protective sex) often oversimplifies a complex reality. Sexual autonomy isn't simply present or absent; it exists on a continuum. By distinguishing between the ability to fully negotiate protective sex and the more limited, yet still significant, ability to refuse or request condom use, the measurement captures critical intermediate levels of agency. This measure of sexual autonomy better reflects the complex power dynamics inherent in sexual relationships and the varying degrees of control women can exert over their sexual health (Connell, 1987; Feyisetan & Oyediran, 2020; Gagnon & Simon, 2005; Oyediran et al., 2011; Simon & Gagnon, 1986).

3.2.1. Disability status and covariates

Disability status, the primary explanatory variable, was constructed using the standardised WG-SS on Functioning, as integrated into the Nigeria DHS household questionnaires (Washington Group on Disability Statistics, 2022). This module assesses functional limitations across six core domains: seeing, walking, hearing, remembering, communicating,

and self-care. In accordance with DHS protocols, these difficulties were reported by the household head or a designated adult respondent for all eligible members, rather than through individual self-reports. Following Washington Group guidelines, a dichotomous disability variable was generated based on the severity of reported functional limitations. Individuals reported as having 'no difficulty' or 'some difficulty' across all six domains were classified as 'without disability' (0). Conversely, those reported to have 'a lot of difficulty' or 'cannot do at all' in at least one domain were classified as 'with disability' (1).

While proxy reporting is the standard administrative procedure for the NDHS household module, it implies that the "disability status" analysed here reflects household-level recognition of functional limitations rather than subjective individual identification. This methodological constraint is noted, as proxy reporting may result in the underestimation or misclassification of disability due to social desirability bias or the prevailing stigma surrounding disability within the household context. Based on the literature and theoretical framework, this analysis included other explanatory variables associated with sexual negotiation: age, place and region of residence, religion, education, household wealth, parity, and involvement in household decision-making (particularly regarding the woman's health care). Supplementary Table 3a provides a comprehensive overview of the DHS variable identifiers, original response categories, and the recoding logic applied in the regression analysis to facilitate reproducibility.

3.3. Analysis strategy

Descriptive, bivariate (using the chi-squared test), and multivariate analyses were conducted. The descriptive analysis details the distribution of respondents by ability to negotiate protective sex. Bivariate analysis explored the marginal associations between women with disabilities' ability to negotiate protective sex and the covariates. Given the three categories of women with disabilities' ability to negotiate for protective sex (high, moderate, and lack), a multinomial logistic regression model was used to determine if individual, relationship, and community factors were significantly related to the ability to negotiate. Lack of ability to negotiate served as the reference category for this outcome variable in the multinomial regression. Therefore, this analysis examined the adjusted relative risk ratio (aRRR) for two comparisons: (1) women with disabilities' ability to negotiate for moderate protective sex compared to a lack of ability to negotiate for protective sex, and (2) women with disabilities' ability to negotiate for high protective sex compared to a lack of negotiated ability for protective sex. Adjusted relative risk ratios and 95% confidence intervals were reported. To ensure national representativeness and correct for over- or under-sampling, all descriptive and inferential analyses were weighted using the DHS individual women's sample weight (v005), divided by 1,000,000.

Furthermore, the complex survey design of the 2018 NDHS, specifically clustering and stratification—was explicitly accounted for in the multinomial logistic regression models. Standard errors were computed using the *svy* prefix command in STATA 16, which adjusts for the primary sampling units (clusters) and strata to ensure correct variance estimation. Complete-case analysis was used, with no additional imputation performed.

4. Results

4.1. Characteristics of the respondents

Table 1 presents the socio-demographic characteristics of respondents, stratified by disability status. Chi-squared analyses indicate statistically significant differences between women with and without disabilities regarding age, educational attainment, and wealth status ($p < 0.05$). Most women in the sample reported no disability; approximately 5% reported having disabilities. The sample was fairly evenly distributed across age groups: 15-24 years (21.3%), 25-34 years (39.0%), and 35+ years (39.7%). The median age in the sample was 28 years (interquartile range: 17 years). A large proportion of the women had no education (44.1%), followed by those with secondary education (30.3%). Women with primary education constituted 16.7%, and the smallest group had post-secondary education (9.0%).

Table 1
Percentage distribution of women aged 15-49 years by disability status and socio-demographic characteristics, NDHS 2018.

Characteristics	Frequency	Percent	Percent with disability
Disability Status***			
With disability	1010	5.6	
Without disability	17,065	94.4	NA
Age group***			
15-24 years	6138	21.3	3.1
25-34 years	11,273	39.0	3.7
35 years and above	11,477	39.7	11.2
Educational level***			
No education	12,725	44.1	4.1
Primary education	4810	16.7	7.5
Secondary education	8757	30.3	5.3
Post-secondary education	2596	9.0	10.1
Household Wealth Quintile***			
First quintile	6396	22.1	4.2
Second quintile	6267	21.7	5.3
Third quintile	5853	20.3	6.1
Fourth quintile	5531	19.2	6.6
Fifth quintile	4842	16.8	7.2
Place of residence ***			
Urban	10,403	36.0	6.4
Rural	18,485	73.0	5.5
Region of residence ***			
North central	5268	18.2	5.6
North east	5.668	19.6	4.9
North west	8.115	28.1	3.1
South east	3.207	11.1	8.6
South-south	2962	10.3	10.8
South west	3668	12.7	6.1
Religious affiliation ***			
Catholic	2633	9.1	8.5
Other Christians	9629	33.3	8.3
Islam	16,396	56.8	3.6
Traditionalist/No religion/other	230	0.8	6.6
Parity ***			
1-1 child	5632	19.5	4.6
2-3 children	8349	28.9	6.0
4 children and above	14,967	51.6	7.3
Participation in household decisions***			
Self alone or jointly	12,678	43.9	7.5
Spouse or someone else	16,210	56.1	4.2

Note: ***$p < 0.001$ (Chi-squared test). Total weighted sample size = 28,888. Due to rounding, the percentages may not add up to 100.

Regarding wealth, the distribution across quintiles showed a slight inverse trend, with the poorest quintile representing 22.1% and the wealthiest 16.8%. Most women lived in rural areas (73.0%) compared to urban areas (27.0%). Regionally, the Northwest had the highest representation (28.1%), while the Southeast (11.1%) and South-south (10.3%) had lower proportions. In terms of religion, over half identified as Muslim, and less than 10% were Catholic. Parity was high, with 51.6% having four or more children, 28.9% having two to three, and 19.5% having one. Concerning household healthcare decisions, approximately 44% of women reported participating alone or jointly with their spouse, while 56.1% reported that their spouse or another person made the decision.

4.2. Patterns of negotiated ability for protective sex by characteristics

Table 2 shows the distribution of negotiation ability for protective sex across the studied characteristics. Negotiation ability was categorised into: high negotiated ability for protective sex, moderate negotiated ability for protective sex and lack of negotiated ability for

Table 2
Percentage distribution of women aged 15-49 years by socio-demographic Characteristics according to their ability to negotiate protective sex, NDHS 2018.

Characteristics	Frequency	Ability to Negotiate for protective sex		
		High ability to negotiate for protective sex	Moderate ability to negotiate for protective sex	Lack of ability to negotiate for protective sex
Disability Status***				
With disability	1010	43.3	27.6	29.1
Without disability	17,065	35.7	24.2	40.0
Age group***				
15-24 years	6138	31.0	22.0	47.0
25-34 years	11,273	39.4	23.7	36.9
35 years and above	11,477	38.1	26.5	35.4
Educational level***				
No education	12,725	20.8	21.6	57.6
Primary education	4810	38.7	28.7	32.6
Secondary education	8757	52.4	27.0	20.6
Post-secondary education	2596	62.6	22.1	15.4
Household Wealth Quintile***				
First	6396	20.1	21.9	58.0
Second	6267	27.6	24.0	48.4
Third	5853	38.5	26.8	34.7
Fourth	5531	48.4	25.9	25.6
Fifth	4842	57.4	28.3	18.9
Place of residence ***				
Urban	10,403	48.8	24.9	26.3
Rural	18,485	30.6	24.2	45.2
Region of residence ***				
North central	5268	38.1	26.4	35.5
North east	5.668	26.4	29.3	44.3
North west	8.115	22.6	16.8	60.6
South east	3.207	47.3	38.7	14.0
South-south	2962	59.3	21.8	18.9
South west	3668	57.6	20.7	21.7
Religious affiliation ***				
Catholic	2633	47.3	34.0	18.8
Other Christians	9629	53.9	27.5	18.6
Islam	16,396	25.4	21.3	53.3
Traditionalist/ No religion/ other	230	56.5	11.7	31.7
Parity ***				
1-2 child	5632	38.8	22.9	38.3
2-3 children	8349	42.4	23.6	34.0
4 children and above	14,967	33.6	25.5	40.0
Participation in household decisions***				
Self alone or jointly	12,678	47.6	27.8	24.6
Spouse or someone else	16,210	28.9	21.9	49.2

Note: ***$p < 0.001$ (Chi-squared test). Total unweighted sample size = 28,888. Due to rounding, the percentages may not add up to 100.

protective sex. Compared to women without disabilities (35.7%), a higher percentage of women with disabilities reported negotiated ability for high protective sex (43.3%). Conversely, a smaller proportion of women with disabilities lacks negotiated ability for protective sex (29.1%) compared to their counterparts without disabilities (40.0%).

Older women (35+) were slightly more likely to report high negotiated ability for protective sex (39.7%) compared to younger women (15-24 years: 21.3%, 25-34 years: 39.0%). Lack of negotiated ability for protective sex tends to increase with age. A strong positive association was observed between educational attainment and negotiated ability for protective sex. Women with post-secondary education showed the highest negotiated ability for protective sex (62.6%) and the lowest percentage lack negotiated ability for protective sex (15.4%), while

Table 3
Multinomial Logit Regression of the ability to negotiate for Protective Sex by Women's Disability Status and Socioeconomic Characteristics, Nigeria Demographic and Health Survey 2018

Characteristics	Ability to negotiate for high protective sex vs Lack of ability to negotiate for protective sex			Ability to negotiate for moderate protective sex vs Lack of ability to negotiate for protective sex		
	aRRR	p-value	95% CI	aRRR	p-value	95% CI
Disability Status						
Without disability (ref)						
With disability	1.04	0.685	[0.85 - 1.28]	1.21	0.080	[0.96 – 1.52]
Education						
No education	0.50	0.000	[0.43 - 0.57]	0.71	0.000	[0.60 - 0.83]
Primary	0.80	0.003	[0.69 - 0.93]	0.92	0.330	[0.83 - 1.09]
Secondary (ref)						
Higher	1.65	0.000	[1.34 - 2.03]	1.10	0.417	[0.87 - 1.40]
Residence						
Urban (ref)						
Rural	0.80	0.000	[0.72 - 0.89]	0.90	0.082	[0.80 - 1.01]
Age						
15-24 years (ref)						
25-34 years	1.06	0.452	[0.92 - 1.22]	0.95	0.498	[0.82 - 1.10]
35+ years	0.98	0.779	[0.83 - 1.15]	1.01	0.899	[0.86 - 1.19]
Wealth Quintile						
First (ref)						
Second	1.18	0.011	[1.04 - 1.34]	1.11	0.128	[0.97 - 1.26]
Third	1.67	0.000	[1.44 - 1.93]	1.23	0.007	[1.06 - 1.42]
Fourth	1.92	0.000	[1.63 - 2.26]	1.45	0.000	[1.22 - 1.73]
Fifth	1.91	0.000	[1.56 - 2.34]	1.46	0.001	[1.17 - 1.82]
Region of residence						
North Central (ref)						
North East	1.46	0.000	[1.26 - 1.69]	1.55	0.000	[1.34 - 1.80]
North West	0.97	0.617	[0.84 - 1.11]	0.66	0.000	[0.57 - 0.76]
South East	0.88	0.203	[0.71 - 1.07]	1.48	0.000	[1.20 - 1.82]
South South	1.50	0.000	[1.23 - 1.82]	1.10	0.414	[0.88 - 1.36]
South West	1.56	0.000	[1.29 - 1.88]	0.97	0.767	[0.77 - 1.21]
Parity (Children)						
0-1 Children (ref)						
2-3 children	1.06	0.438	[0.92 - 1.22]	1.09	0.251	[0.94 - 1.26]
4 or more children	1.07	0.420	[0.91 - 1.25]	1.18	0.041	[1.01 - 1.39]
Religion						
Catholic (ref)						
Other Christians	1.06	0.532	[0.88 - 1.28]	0.99	0.904	[0.81 - 1.20]
Islam	0.36	0.000	[0.29 - 0.44]	0.45	0.000	[0.36 - 0.55]
Traditionalist/ Other	0.76	0.215	[0.49 - 1.17]	0.45	0.014	[0.24 - 0.85]
Health Decision Making						
Not involved (ref)						
Self alone or jointly	1.31	0.000	[1.18 - 1.44]	1.25	0.000	[1.13 - 1.39]

Note: Ref = Reference Category; CI = Confidence Interval; aRRR = Adjusted Relative Risk Ratio. 95% CI rounded to 2 decimal places.

women with no education had the lowest negotiated ability for protective sex (20.8%) and the highest percentage lack negotiated ability for protective sex (57.6%). Similarly, women in higher household wealth quintiles demonstrated greater negotiated ability for protective sex. The wealthiest women had the highest negotiated ability for protective sex (57.4%) and the lowest percentage lack negotiated ability for protective sex (18.9%), whereas the poorest women had the lowest negotiated ability for protective sex (20.1%) and the highest percentage lack negotiated ability for protective sex (58.0%).

Compared to rural women (30.6%), urban women showed a higher negotiated ability for protective sex (48.8%), and a smaller proportion lack negotiated ability for protective sex (26.3% vs. 45.2%). Regional differences in negotiated ability for protective sex were evident, with women in the Southeast and South-south exhibiting the highest negotiated ability for protective sex. Religiously, Catholic women had the highest negotiated ability for protective sex (47.3%), while a larger percentage of Muslim women lacked negotiated ability for protective sex (53.3%). Parity appeared inversely related to negotiated ability for protective sex; women with one child had a higher negotiated ability for protective sex (38.8%) compared to those with four or more children (33.6%), who also had a higher percentage of lack of negotiated ability for protective sex (40.0%). Finally, women involved in household decisions alone or jointly demonstrated higher negotiated ability for protective sex (47.6%) compared to those whose decisions were made by their spouse or someone else (28.9%), with the latter group also showing a higher percentage of lack of negotiated ability for protective sex (49.2%).

4.3. Ability to negotiate for protective sex in Nigeria: multivariate analysis

Unadjusted analysis of the relative risk ratios between women's disability status and their ability to negotiate for protective sex showed that compared to women who lack the ability to negotiate for protective sex, women with disabilities had a higher relative risk of: (1) ability to negotiate for moderate protective sex (RRR = 1.75, p < 0.000, 95% CI: 1.40–2.20), and (2) ability to negotiate for high protective sex (RRR = 1.64, p < 0.000, CI: 1.35–1.99). As shown in the unadjusted estimates provided in Supplementary Table 3b, significant associations were observed across sociodemographic characteristics.

Table 3 presents the adjusted relative risk ratios (aRRR), p-values, and 95% confidence intervals (CI) from a multinomial logistic regression model analysing factors influencing Nigerian women's ability to negotiate for protective sex, using the inability to negotiate for protective sex as the reference category. The model examined two outcomes: (1) moderate ability to negotiate for protective sex, and (2) high ability to negotiate for protective sex. The analysis revealed a significant correlation between disability status and ability to negotiate for protective sex. Specifically, women with disabilities were marginally more likely to have moderate ability to negotiate for protective sex compared to those without disabilities (aRRR = 1.21, p < 0.080, 95% CI: 0.96 – 1.52), indicating a 21% increase in likelihood. However, there was no significant difference between the two groups in their high ability to negotiate for protective sex (aRRR = 1.04, p = 0.685, 95% CI: 0.85–1.28).

Regarding factors associated with improved agency, the multinomial logistic regression indicated that women with disabilities had a higher relative risk of being able to have moderate ability to negotiate for protective sex if they belonged to the third (aRRR = 1.23, p = 0.007, CI: 1.06 -1.42), fourth (aRRR = 1.45, p = 0.001; CI: 1.22 – 1.73), or fifth (aRRR = 1.46, p = 0.001; CI: 1.17 - 1.82) household wealth quintiles. Similarly, protective associations were found for those who lived in the Northeast (aRRR = 1.55, p = 0.000, CI: 1.34 – 1.80) or Southeast (aRRR = 1.48, p = 0.000, CI: 1.20 – 1.82) region, had four or more children (aRRR = 1.18, p = 0.041, CI: 1.01 – 1.39), or participated in decisions about their healthcare (aRRR = 1.25, p = 0.000, CI: 1.13 – 1.39). Although post-secondary education appeared to be associated with a moderate ability for women with disabilities to negotiate for safer sex, this finding was not statistically significant (aRRR = 1.1; 95% CI: 0.87–1.40; $p = 0.417$).

Conversely, specific intersections of identity were associated with reduced negotiation capacity. Women with disabilities had a lower relative risk of reporting moderate ability to negotiate for protective sex if they lived in the Northwest region (aRRR = 0.66, p = 0.000, CI: 0.57 – 0.76), or identified as Muslim (aRRR = 0.45, p = 0.000, CI: 0.36 – 0.55) or traditionalist (aRRR = 0.45, p = 0.014, CI: 0.24 – 0.55).

While women with disabilities showed a higher probability of having a higher ability to negotiate for protective sex compared to those without disabilities, this finding was not statistically significant and may be sociologically trivial. The multinomial logistic regression further revealed that, compared to their respective reference groups and women who cannot negotiate for protective, women with disabilities had a higher relative risk of having high ability to negotiate for protective sex if they had post-secondary education (aRRR = 1.65, p = 0.001, CI: 1.34 – 2.03) or belonged to the second (aRRR = 1.18, p = 0.011, CI: 1.04 – 1.34), third (aRRR = 1.67, p = 0.000, CI: 1.44 – 1.931), fourth (aRRR = 1.92, p = 0.000, CI: 1.63 – 2.26), or fifth (aRRR = 1.93, p = 0.000, CI: 1.56 – 2.34) household wealth quintiles. Likewise, higher relative risks were found for women with disabilities living in the Northeast (aRRR = 1.46, p = 0.000, CI: 1.26 – 1.69), South-south (aRRR = 1.50, p = 0.000, CI: 1.23 – 1.82), or Southwest (aRRR = 1.56, p = 0.000, CI: 1.29 – 1.88) regions, and for those who participated in their own healthcare decisions (aRRR = 1.31, p = 0.000, CI: 1.18 – 1.44). Conversely, women with disabilities had a lower relative risk of reporting high ability to negotiate for protective sex if they had no education (aRRR = 0.50, p = 0.000, CI: 0.43 – 0.57), primary education (aRRR = 0.80, p = 0.003, CI: 0.69 – 0.93), were rural dwellers (aRRR = 0.80, p = 0.000, CI: 0.72 – 0.89), or identified as Muslim (aRRR = 0.36, p = 0.000, CI: 0.29 – 0.44).

5. Discussion

The study examined the relationship between Nigerian women's disability status and their ability to negotiate for protective sex. It found that 5.6% of women in unions or cohabitation reported some level of disability, compared to 3.8% of Ugandan women (Kwagala & Galande, 2022). However, a recent study using the same 2018 NDHS dataset estimated a significantly higher disability prevalence of nearly 12% among the general adult population aged 15 and older (Ishola et al., 2025). This discrepancy suggests that women with disabilities may face barriers to entering unions, resulting in their underrepresentation in samples of married women. Additionally, the prevalence may be underreported given the prevalence of undiagnosed impairments (particularly visual, hearing, communication, and memory-related), which are often associated with stigma and discrimination that deters reporting.

Regarding protective sex negotiation, women with disabilities were more likely to report a high ability to negotiate for protective sex (43.3%) than women without disabilities (35.7%). Conversely, women with disabilities reported a lower percentage of lack of ability to negotiate for protective sex (29.1%) compared to women without disabilities (40.0%). This aligns with previous research on women's ability to negotiate protective sex in Cote d'Ivoire and Nigeria (Feyisetan & Oyediran, 2020), Ghana (Arthur-Holmes et al., 2023; Tenkorang, 2012), and elsewhere (Aboagye et al., 2021). The findings indicate that women with disabilities were more likely to possess moderate negotiation ability (the ability to either refuse sex or request condom use) compared to those with no ability. Several mechanisms may explain this pattern. First, women with disabilities may exercise heightened caution regarding sexual risks due to an acute awareness of their vulnerability to coercion or the compounded health and economic consequences of an unintended pregnancy or infection (Odimegwu et al., 2025; Tepper, 2000). Second, the 'desexualisation' often experienced by women with disabilities might paradoxically alter partner dynamics; partners may view them as less sexually available or assertive, potentially making a

refusal of sex less conflict-prone than in relationships where sexual availability is rigidly expected. Finally, the caregiving nature of some spousal relationships may introduce a distinct pragmatic element to sexual interactions, where negotiation for protection (like condom use) is normalised as part of broader health management.

The study's results are consistent with existing literature that emphasises the compounded effects of gender-based and disability-related marginalisation. Women with disabilities often experience limited access to education, healthcare, and social inclusion, which collectively undermines their agency in sexual relationships (Groce et al., 2011). These structural inequalities create an environment where women with disabilities may find it difficult to assert their needs and preferences, reinforcing power imbalances that favour their partners' desires (Feyisetan & Oyediran, 2020; Oyediran et al., 2011).

Unadjusted analyses initially suggested that women with disabilities had a significantly higher likelihood of 'high' negotiation ability compared to their non-disabled counterparts. However, this association disappeared in the adjusted multivariate model (aRRR = 1.04, p = 0.685). From an intersectional perspective, this attenuation illustrates how socioeconomic privilege can mitigate the marginalisation typically ascribed to disability. The unadjusted advantage was likely a function of the sample's demographic profile, wherein women with disabilities occupied higher wealth and education strata. These intersecting social locations confer resources and agency that buffer against disability-related barriers. Consequently, once these structural privileges were controlled for, the independent 'disability advantage' vanished, confirming that sexual autonomy is shaped by the dynamic interplay of class and ability rather than disability status alone.

This finding is critical to an intersectional analysis, which posits that individuals hold multiple social identities that can offer either privilege or disadvantage. In this specific sample, women with disabilities were disproportionately represented in higher wealth and education strata—factors that intersectionality theory suggests can safeguard against the marginalisation typically associated with disability. The initial 'advantage' was likely not a function of disability itself, but of the socioeconomic privilege that these specific women possessed. This highlights the necessity of viewing disability not as a monolithic vulnerability, but as one axis of identity that interacts complexly with class and education. Additionally, the overall low rates of women's ability to negotiate for protective sex in Nigeria, regardless of disability status, suggest a broader societal issue of limited sexual autonomy among women. Aligning with the Social-Ecological Model (SEM) adopted in this study, results indicate that variables situated at the individual and interpersonal levels function as critical determinants of negotiation ability.

Several socio-demographic factors were identified as significantly associated with women's ability to negotiate for protective sex. Education emerged as an important factor, with women with post-secondary education demonstrating a higher likelihood of the ability to negotiate for protective sex. This finding aligns with previous research indicating that education empowers women with greater knowledge, resources, and self-efficacy to make informed decisions about their sexual health (Imo et al., 2022). Household wealth quintile also played a significant role, with women in higher wealth quintiles exhibiting greater ability to negotiate for protective sex. Economic security can enhance women's autonomy and reduce their reliance on partners, enabling them to assert their sexual preferences more confidently (Tenkorang, 2012; Ung et al., 2014).

Furthermore, the sociodemographic profile of women with disabilities in this study aligns with recent findings from the general population. Ishola et al. (2025) similarly observed higher odds of reported disability among Nigerians in the richest wealth quintiles and those with post-secondary education. This counterintuitive finding, observed in both the general and married populations, likely reflects a 'reporting bias' where individuals with higher socioeconomic status possess greater awareness of functional limitations or face less stigma in disclosing them (Ishola et al., 2025). Within the community and structural domains of the SEM, environmental factors were instrumental in shaping the scope of women's agency.

The study revealed regional disparities in women's ability to negotiate for protective sex. Women from the Northeast, Southeast, South-south, and Southwest regions showed a higher likelihood of ability to negotiate for protective sex compared to those from the North Central region. These regional differences may reflect variations in cultural norms, religious practices, and socioeconomic development across Nigeria. Within the Social-Ecological Model, these regional disparities represent *community* and *societal*-level factors that constrain individual agency. The sharp contrast between the North (particularly the Northwest) and the South suggests that macro-level normative environments, governed by differing religious and cultural expectations regarding women's submission, exert a powerful influence on intimate negotiations. For women with disabilities, these community-level constraints likely compound individual-level functional limitations, creating a *disabling environment* that is significantly harder to navigate than the impairment itself. Notably, women identifying as Muslim were less likely to have the ability to negotiate for protective sex, consistent with studies highlighting the influence of conservative religious views on women's reproductive behaviour, including their sexual activities (Ndoni, 2023; Oyediran et al., 2020).

Parity and participation in household decision-making also emerged as important factors. The study found that women with more children showed a greater ability to negotiate for protective sex, moderate ability to negotiate for protective sex, and high ability to negotiate for protective sex. This suggests the significant role childbearing can play in women's autonomy within the household power structure. In some Nigerian cultures, women with children, especially adult children contributing economically, are often accorded more respect in household roles and decisions. Furthermore, women who reported participating in their own healthcare decisions were more likely to have the ability to negotiate for protective sex. These findings suggest that greater reproductive autonomy and decision-making power within the household can enhance women's ability to prioritise their sexual health.

Interpreting these findings through an intersectional lens suggests that disability exists alongside poverty, geography, and religious context to shape women's vulnerability. For instance, the reduced likelihood of exercising negotiation agency is evident among women with disabilities, and this likelihood is further diminished among those residing in the Northwest or identifying as Muslim. In these contexts, conservative gender norms likely coexist with disability-related stigma, creating a cumulative burden. Conversely, the protective role of wealth and post-secondary education suggests that socioeconomic privilege may help buffer against marginalisation associated with disability. Ultimately, these complexities align with the theoretical position that the sexual autonomy of women with disabilities is situated within a *matrix of domination*, where structural barriers, such as economic precarity and regional underdevelopment, collectively contribute to constraining agency.

6. Strengths and weaknesses

The study's strengths include the use of a nationally representative dataset (the 2018 NDHS). This represents a high-quality and often rare resource for disability and SRHR research in low- and middle-income contexts, which provides a comprehensive overview of the relationship between women's disability status and their ability to negotiate for protective sex in Nigeria. The use of the WGSS for measuring disability status enhances the comparability of findings with other studies.

Furthermore, the use of proxy reporting in the Nigeria DHS enhances data inclusiveness for objective functional limitations. It allows household heads to provide information on vulnerable groups, such as the elderly with cognitive impairment or individuals with severe communication disabilities, who might otherwise be excluded from individual

interviews. While ideally complemented by individual verification, the reliability of this data is reflected in the growing body of literature utilising DHS disability modules to analyse public health trends and social inclusion globally.

Additionally, the multinomial logistic regression model allowed for a nuanced analysis of the factors associated with women's ability to negotiate across different levels. The study offers a significant strength by moving beyond traditional binary measures of sexual autonomy to a more nuanced, three-tiered system. This approach acknowledges that women's ability to negotiate for protective sex exists on a spectrum, allowing for a more precise understanding of their agency. Differentiating between high ability, moderate ability, and a lack of ability to negotiate for protective sex, the framework provides a richer, more detailed insight into how varying degrees of autonomy impact sexual health outcomes. This granular categorisation is essential for identifying distinct groups of women who may require different types of support and intervention strategies, ultimately leading to more targeted and effective public health initiatives.

However, the study also has several limitations. First, its cross-sectional design limits the ability to establish temporal precedence or causal relationships. Second, the reliance on self-reported data for the outcome variables may introduce social desirability bias, particularly concerning sensitive topics such as sexual autonomy and condom use. The decision to categorise "don't know," "not sure," or "depends" responses as "no" for the outcome variable could lead to an underestimation of women's negotiation ability, suggesting that the results represent a conservative estimate of sexual agency.

A significant methodological consideration involves the proxy-reporting of disability status. Since disability status was reported by household heads rather than the women themselves, there is a risk of misclassification or underreporting. However, within the Nigerian socio-cultural framework, where the household head frequently mediates access to healthcare and resources, this approach captures "socially recognised disability." This recognised status is arguably more pertinent to the domestic power dynamics under investigation, particularly regarding sexual negotiation. If a woman is perceived as "disabled" by the household head (often the partner), this labelling may reinforce traditional hierarchies where she is viewed as dependent or desexualised. Consequently, her leverage to negotiate condom use or refuse sex is diminished not solely by her functional impairment, but by the household's *acknowledgement* of that impairment as a justification for reduced autonomy. Thus, while the study may not capture subjective disability identity, it provides a valid assessment of how externally identified limitations intersect with sexual autonomy.

Nevertheless, this reliance on proxy reporting introduces specific biases that must frame the interpretation of our findings. Proxy respondents are more likely to report visible or severe physical impairments while overlooking invisible, mild, or stigmatised conditions (e.g., mental health issues or hearing loss). This likely results in an underestimation of disability prevalence and a specific misclassification where women with invisible disabilities are categorised as "without disability." Analytically, this suggests our findings may be conservative; if women with undisclosed disabilities were correctly classified, the observed disparities in negotiation ability might be even more pronounced. The current results, therefore, likely reflect the experiences of women with the most visible and recognised forms of disability, who may face the most overt structural barriers.

Finally, the construct of "sexual negotiation ability" in this study is limited to two specific indicators: the ability to refuse sex and the requesting for condom use. While these are critical pillars of reproductive agency, they do not capture the full spectrum of sexual autonomy, such as initiating sex, choosing partners, or discussing reproductive goals. Moreover, the study did not disaggregate disability by type or severity. Given that different functional impairments may impact social and sexual negotiation power in distinct ways, the nuances of these varying impacts remain an important area for future research. From an analytical perspective, this study is subject to unmeasured confounding; key variables, such as a partner's attitudes toward gender roles or detailed relationship histories, were unavailable in the dataset yet may influence the observed associations.

Additionally, while the study adjusts for household decision-making, this variable may function as a mediator on the causal pathway between disability and negotiation ability. Consequently, its inclusion requires caution, as it can bias the interpretation of the direct adjusted estimates. Furthermore, despite adopting an intersectional theoretical framework, the quantitative analysis did not include statistical interaction terms (e.g., disability × region), precluding a formal assessment of how structural factors jointly modify the effect of disability. In terms of measurement, while the Washington Group Short Set (WG-SS) is a widely validated instrument, it demonstrates limited sensitivity toward certain functional domains—particularly mental health and neurodiverse conditions—which may result in an underestimation of disability prevalence. Finally, the relatively small subsample of women with disabilities (approximately 5%) constrains the statistical power of the analysis, reducing the precision of subgroup estimates and resulting in wider confidence intervals for granular regional or demographic strata.

7. Policy and programmatic implications

The findings of this study underscore critical policy and programmatic needs to advance the sexual and reproductive health and rights (SRHR) of women with disabilities in Nigeria. The analysis reveals that addressing the SRHR needs of women with disabilities requires moving beyond a 'one-size-fits-all' approach. Since the statistical results indicate that negotiation ability is severely constrained by specific structural factors, namely, residence in the Northwest region, Muslim religious affiliation, and lower wealth quintiles, interventions must be geographically and culturally targeted. It is not enough to target 'disability' broadly; programs must specifically engage conservative religious communities and regional stakeholders in the North to dismantle the 'double burden' of gender norms and disability stigma identified in this study. Key actions include ensuring inclusive SRH programs with physical accessibility and accessible information, empowering women through education and economic opportunities, and actively challenging disability-related stigma and discrimination via public awareness and education.

Effective implementation of existing policies and laws requires culturally sensitive and tailored approaches that engage community leaders and address the specific needs of diverse subpopulations, especially across regions and religious groups. Strengthening legal and policy frameworks is vital to protect the rights of women with disabilities, enforce laws against violence and discrimination, and ensure access to justice and support services. Timely implementation of the Discrimination Against Persons with Disabilities (Prohibition) Act, 2018, supported by implementation research, will facilitate effective policy formulation and the design of responsive interventions. Furthermore, investing in research to understand the diverse experiences of women with different disabilities and rigorously evaluating intervention effectiveness through improved data collection is vital for informed programming.

Ultimately, addressing the identified sociodemographic factors and implementing targeted, inclusive interventions are paramount to achieving greater SRH equity for this marginalised population in Nigeria and realising relevant SDGs and targets. Prioritising accessibility, empowerment, and the elimination of stigma, policymakers and implementers can uphold the rights, dignity, and well-being of women with disabilities, ensuring their full participation in society and access to essential health services. It is important to note that these findings specifically reflect the experiences of currently married or cohabiting women. Consequently, the unique challenges faced by unmarried women with disabilities, who may encounter different forms of exclusion or negotiation dynamics, require distinct investigation to ensure comprehensive policy coverage.

CRediT authorship contribution statement

Kola Oyediran: Writing – review & editing, Writing – original draft, Visualization, Software, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Clifford Odimegwu:** Writing – review & editing, Writing – original draft, Supervision, Conceptualization. **Obasanjo Bolarinwa:** Writing – review & editing, Writing – original draft, Investigation.

Availability of data and materials

The datasets analysed during the current study are available from the corresponding author upon reasonable request. Data from the Demographic and Health Surveys (DHS) Program, which were utilised in this research, are typically publicly available through their website: https://dhsprogram.com/data/available-datasets.cfm. It is important to note that recent changes in the United States' foreign aid policy have led to a suspension or reduction of funding for the DHS Program, which may currently limit the accessibility of certain datasets. Researchers seeking to access DHS data are encouraged to consult the DHS Program website for the latest information regarding data availability.

Ethical approval

Review and/or approval by an ethics committee was not needed for this study because this study relied exclusively on secondary, publicly available, and anonymised data, formal ethical approval was not deemed necessary. The nature of these data precludes the identification of individuals and therefore presents no risk to participant privacy or well-being.

Declaration of the use of Artificial Intelligence

Artificial Intelligence (ChatGPT) was only used for paraphrasing and paraphrase reconstruction.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

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