

RESEARCH

Open Access



Sexual violence and associated factors among reproductive-age females with disabilities in central Sidama National Regional State, Ethiopia: a multilevel analysis

Zelalem Tenaw^{1*}, Taye Gari² and Achamyesh Gebretsadik²

Abstract

Background Sexual violence is one of the most common problems in reproductive health that causes different traumatic events that lead to mental, social, and physical problems. Females with disabilities are subjected to more traumatic events and consequences. In Ethiopia, there are limited evidences about the prevalence and associated factors of sexual violence among reproductive-aged females with disabilities. Therefore, this study aimed to assess the prevalence and associated factors of sexual violence among females with disabilities in reproductive-age in central Sidama National Regional State, Ethiopia.

Methods A multistage sampling technique was used to select 645 reproductive-age females with disabilities. Initially, three districts were purposefully selected, from which 30 kebeles and study participants were selected randomly from June 20 to July 15, 2022. A face-to-face interviewing technique was used to collect the data. The data were analyzed using a multilevel logistic regression analysis model. The measures of associations were reported using the adjusted odds ratio (AOR) and its 95% confidence interval (CI).

Results The prevalence of sexual violence among reproductive-age females with disabilities was 59.8% (95% CI: 56, 63.56). Residing in an urban setting (AOR = 0.51; 95% CI: 0.29, 0.88), being an adult (25 to 34 years old) (AOR = 5.9; CI: 3.01, 11.6), being an adult (35 to 49 years old) (AOR = 3.47; CI: 1.48, 8.14), having no sexuality information (AOR = 11.3; CI: 6.24, 20.5), and having hearing disabilities (AOR = 3.19; CI: 1.49, 6.83) were factors associated with sexual violence.

Conclusions Sexual violence among reproductive-age females with disabilities is noticeably high. Place of residence, sexual orientation, age, and disability type were all factors associated with sexual violence. Therefore, providing sexuality education, giving high attention (information and education about sexuality) to rural residents, and considering females with hearing disabilities are important to minimize sexual violence among reproductive-age females with disabilities.

Keywords Ethiopia, Disability, Multilevel analysis, Prevalence, Sexual violence

*Correspondence:

Zelalem Tenaw
abigiatenaw@gmail.com

¹ Department of Midwifery, College of Medicine and Health Sciences,
Hawassa University, Hawassa, Ethiopia

² School of Public Health, College of Medicine and Health Sciences,
Hawassa University, Hawassa, Ethiopia

Background

According to the World Health Organization, disability is defined as any impairment of a person's body function or structure, activity limitation, and participation restriction (environmental factors) [1, 2]. Sexual violence is an act or attempt to engage in sexual intercourse without the



© The Author(s) 2023. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

consent of the other person [3], in majority of developing countries, including Ethiopia, reproductive health services are not easily accessible and not inclusive to reproductive-age females with disabilities [4, 5].

Because of exclusion, discrimination and misconceptions, people with disabilities are excluded from sexual education [6]. Due to a lack of sexuality information (boundaries of relationships, touch, and communication) and knowledge, females with disabilities are more vulnerable to reproductive health issues such as sexual violence [7]. In addition, dependence on others, less education about sexuality, and physical vulnerability, among others, people with disabilities are more vulnerable to sexual violence [8].

Sexual violence is more prevalent among people with disabilities compared with non-disabled [9]. Relative to non-disabled women, women with disabilities have a higher proportion of lifetime sexual violence which is twofold [10]. Females with disabilities are more likely to be sexually abused than males with disabilities [11]. Sexual violence causes serious traumatic events that lead to mental, social, and physical problems [12]. Females with disabilities who are sexually abused appear to suffer the worst consequences [13].

The prevalence of sexual violence had a great difference between developed and developing countries. For instance, the reported prevalence among women with disability was 12.5% in the United States of America, [14], in Denmark, 9.4% [7], in Nepal, 21.5% [15], in the Democratic Republic of the Congo, 73.47% [16], in Nigeria, 28% [17], and 23.3% [18]. In Ethiopia, there is limited evidence about the prevalence and associated factors of sexual violence, but one qualitative study conducted in Addis Ababa revealed that two of four blind and deaf individuals were raped by their relatives [19].

Likewise, different researchers tried to identify the factors associated with sexual violence. But the evidence is scarce in African countries, including Ethiopia. The African studies were qualitative and conducted in South Africa [20] and Senegal [21]. On the other hand, the study conducted in Canada [22] identified age, household income, information about sexuality, and marital status as the factors associated with sexual violence among females with disabilities.

Therefore, the aim of this study was to assess the prevalence and factors associated with sexual violence among reproductive-age females with disabilities.

Methods

Study design and setting

A community-based cross-sectional study was carried out from June 20 to July 15, 2022. The study was conducted in the Dale and Wonsho districts and in the

Yirgalem city administration in Sidama National Regional State, Ethiopia. The details of the study settings were described elsewhere [23].

Population

Reproductive-age females with disabilities in Dale and Wonsho districts and Yirgalem city administration in Sidama National Regional State were the source population. Reproductive-age females with disabilities who lived in the selected kebeles for at least six months were the study population. The details of population were described elsewhere [23].

Sample size determination

By considering a single population proportion formula, the sample size was determined using Epi Info version 7 software with the assumptions of a 95% confidence interval with 73.47% of sexual violence [16], a level of significance (α) of 0.05, a 5% margin of error ($d=0.05$), and a design effect of 1.64. The sample size for associated factors of sexual violence was also computed using Epi-Info version 7 with the assumptions of a two-sided confidence level of 95%, a power of 80, a 1:1 ratio of exposed to unexposed subjects, and percent outcomes in the unexposed and exposed groups. Accordingly, the maximum (592) sample size was determined by having information about sexuality [22]. The sample size from the associated risk factors (592 samples) was larger than the prevalence sample size (510 samples). After adjusting for an anticipated 10% nonresponse rate, the final sample size was 652.

Sampling procedure

The sample size was proportionally allocated to the 30 selected kebeles. Initially, based on our resource, population density and the nature of socio-demographic characteristics to represent the Sidama population, the three districts were purposefully selected, from which 30 kebeles and study participants were selected randomly. The details of sampling procedure were described elsewhere [23]. The heads of households were asked about the presence of people with disabilities in the household. Reproductive-age females with disabilities were identified based on the World Health Organization's disability definition and registered (a total of 700) during the census using the tracing form. Based on the registration, the study participants were selected by a simple random sampling technique.

Variables

The outcome variable was sexual violence. It is an act or attempt to perform sexual intercourse without the consent of the other person in life time. Whereas, the independent variables were marital status, age, household

income, information about sexuality, Type of disability, residence.

Data collection procedures and quality assurance

The data collection tool was adopted from the World Health Organization multi-country study measurement tool [24]. After adopting and pretesting the data collection tool, six data collectors and one supervisor who are fluent speakers of Sidamu Afoo and who have data collection experience were employed. The data collection procedures and quality assurance were described in the previously published project [23]. The trained data collectors did a pre-test on 33 (5%) reproductive-age females with disabilities in *Lokie kebele* Hawassa city to check the tools, and corrections were made based on the feedback.

Outcome measurement

Sexual violence was measured using the World Health Organization multi-country study measurement tool [24]. The tool had three items used to assess sexual violence. The items were: had someone physically forced her to have sexual intercourse; had she had sexual intercourse when she did not want to and because she was scared of what someone might do; or had someone forced her to do something sexual that she found shameful? Sexual violence was coded "yes" when the participant has experienced any of the above three types of violence in their life. For deaf participants, sign language translators were considered to translate the sign language.

Data management and analysis

The Kobo Collect version 2021.3.4 application was used to collect the data. Following collection, the data were imported into Stata version 16 for analysis using the "SSC install kobo2stata" command. The details of data management and analysis were described elsewhere [23]. The ICC of 0.05 and its chi-square ($P < 0.001$) significance level showed that using a multilevel analysis model is reasonable.

Results

Socio-demographic characteristics of study participants

A total of 645 reproductive-age females with disabilities participated in this study, with a 98.92% response rate. The mean (standard deviation) age of the study participants was 27.72 (8.16) years. The majority (60.40%) of the study participants reside in rural settings. Among the participants, 59.53% had no formal education (unable to read and write). Almost all (97.86%) were not employed, and 90.08% had no occupation (Table 1).

Table 1 Socio-demographic characteristics of study participants in central Sidama Regional State, Ethiopia, 2022 (N=645)

| Variable | | Number | Percent |
|---------------------------------|--------------------------|--------------|---------|
| Age in years mean (SD) | | 27.72 (8.16) | |
| Marital status of participants | Married | 344 | 53.33 |
| | Never married | 264 | 40.93 |
| | Others ^a | 37 | 5.7 |
| Residency | Rural | 396 | 60.40 |
| | Urban | 249 | 38.60 |
| Participants educational status | Primary school | 174 | 26.98 |
| | Secondary school | 78 | 12.09 |
| | Vocational and technique | 9 | 1.40 |
| | Unable to read and write | 384 | 59.53 |
| Employment status | Employed | 11 | 1.02 |
| | Unemployed | 505 | 97.86 |
| Occupation | Have occupation | 64 | 9.92 |
| | No occupation | 581 | 90.08 |
| Self-perception | Good | 442 | 68.53 |
| | Bad | 203 | 31.47 |
| Sexuality information | Yes | 297 | 46.05 |
| | No | 348 | 53.95 |
| Household wealth index | Low | 212 | 32.87 |
| | Medium | 218 | 33.80 |
| | High | 215 | 33.33 |
| Having health insurance | Yes | 41 | 6.36 |
| | No | 604 | 93.64 |
| Living with | Husband | 329 | 51.01 |
| | Family member | 280 | 43.41 |
| | Others ^b | 36 | 5.58 |

^a Divorced, widowed

^b Peers, relatives, alone

Prevalence of sexual violence among reproductive-age females with disabilities

In this study, the prevalence of sexual violence among reproductive-age females with disabilities was 59.8% (95% CI: 56, 63.6). Of these, 15.3% (95% CI: 12.7, 18.4) were among extremity disabilities; 16% (95% CI: 13.4, 19.2) were among vision disabilities; 17% (95% CI: 14, 20) were among hearing disabilities; and 11.5% (95% CI: 9.11, 14.2) were among wheel-chair disabilities. In the previous year, 14.3% (95% CI: 11.7, 17.2) of the violence occurred.

Factors associated with sexual violence among reproductive-age females with disabilities

Random effect model

The random intercept model is used to decide whether or not to use the multilevel analysis model based on the ICC value and chi-square test significance level [25]. In our random effect model analysis, the empty model (model I) showed that 5.15% of the variability in sexual violence

occurred at the community level (kebele level) and could be attributed to other unobserved community factors (ICC=0.05), ($P < 0.001$). This evidence shows that using a multilevel analysis model is reasonable.

Fixed effect model

In the bivariable logistic regression, marital status, educational status, occupation, self-perception, age, sexuality information, wealth index, residency, and types of disability were significantly associated with sexual violence. But in the multivariable, multilevel logistic regression analysis, age, sexuality information, types of disability, and residency were significant factors associated with sexual violence. Reproductive-age females with disabilities who reside in urban settings had 49% (AOR=0.51; 95% CI: 0.29, 0.88) lower odds of sexual violence compared with those who reside in rural settings. The odds of sexual violence among females with disabilities aged 25 to 34 years old increased by six folds (AOR=5.9; CI: 3.01, 11.6) and by 3.47 folds (AOR=3.47; CI: 1.48, 8.14)

among females with disabilities whose age is 35 to 49 compared with females aged 15 to 24 years old with disabilities. On the other hand, reproductive-age females with disabilities who had no sexuality information had a higher chance (AOR=11.3; CI: 6.24, 20.5) of experiencing sexual violence compared with those who had sexuality information. Regarding types of disabilities, the odds of sexual violence among females with hearing disabilities were threefold (AOR=3.19; CI: 1.49, 6.83) compared with females with vision disabilities (Table 2).

Discussion

The prevalence of sexual violence among reproductive-age females with disabilities is 59.8%. The associated factors with sexual violence were residence, sexuality information, age, and type of disability.

The prevalence of 59.8% in this study is lower when compared with studies conducted in the Democratic Republic of the Congo (73.47%) [16]. The difference could be due to the difference in study setting. The Democratic

Table 2 Multilevel logistic regression analysis for factors associated with sexual violence among reproductive-age females with disabilities in Dale and Wonsho districts and Yirgalem city administration, 2022

| Variables | | Sexual violence | | COR with 95% CI | AOR with 95% CI |
|-----------------------|--------------------------|-----------------|-----|-------------------|---------------------|
| | | Yes | No | | |
| Marital status | Never married | 128 | 173 | 1.00 | 1.00 |
| | Married | 258 | 86 | 0.23(0.16, 0.33)♦ | 0.63 (0.35, 1.12) |
| Educational status | Unable to read and write | 216 | 168 | 1.00 | 1.00 |
| | Primary | 116 | 58 | 1.54(1.05, 2.27)♦ | 1.04 (0.57, 1.87) |
| | Secondary and above | 54 | 33 | 1.28(0.78, 2.09) | 0.74 (0.35, 1.56) |
| Occupation | Have no occupation | 330 | 251 | 1.00 | 1.00 |
| | Have occupation | 56 | 8 | 5.04(2.33,10.89)♦ | 1.72 (0.69, 4.28) |
| Self-perception | Bad | 138 | 65 | 1.00 | 1.00 |
| | Good | 248 | 194 | 1.66(0.40,0.83)♦ | 1.67 (0.95, 2.93) |
| Age (Years) | 15 to 24 | 79 | 157 | 1.00 | 1.00 |
| | 25 to 34 | 207 | 70 | 6.09(4.09,9.08)♦ | 5.90 (3.01, 11.6)** |
| | 35 to 49 | 100 | 32 | 6.60(3.96,11.00)♦ | 3.47 (1.48, 8.14)** |
| Sexuality information | Yes | 107 | 190 | 1.00 | 1.00 |
| | No | 279 | 69 | 8.12(5.54,11.91)♦ | 11.3 (6.24, 20.5)** |
| Wealth index | Poor | 139 | 73 | 1.00 | 1.00 |
| | Medium | 97 | 121 | 0.41 (0.27,0.61)♦ | 0.68 (0.38, 1.19) |
| | High | 150 | 65 | 1.19(0.78,1.81)♦ | 0.79 (0.46, 1.35) |
| Types of Disability | Vision | 104 | 44 | 1.00 | 1.00 |
| | Hearing | 109 | 25 | 1.70(0.94, 3.08)♦ | 3.19 (1.49, 6.83)** |
| | Extremity | 99 | 135 | 0.27(0.16,0.43)♦ | 0.61 (0. 32, 1.16) |
| | Wheel-chaired | 74 | 55 | 0.57(0.34,0.98)♦ | 2.05(0.97, 4.32) |
| Residence | Rural | 236 | 160 | 1.00 | 1.00 |
| | Urban | 150 | 99 | 0.48(0.34, 0.67)♦ | 0.51(0.29, 0.88)** |

AOR Adjusted odds ratio, CI Confidence interval

♦ P-value < 0.2

** P-value < 0.05

Republic of the Congo study was conducted in a special area where high conflict and instability are common, which might increase the likelihood of sexual violence [26]. On the other hand, the prevalence of 59.8% was higher than the study conducted in Nigeria on in-school young people with disabilities (28%) [17]. The possible reason could be that the Nigerian study was conducted among young females with disabilities aged 10 to 25 years old, which could mean that sexual violence was not common compared with those ages 25 to 49 [27]. The other possible reason might be that the Nigeria study reported only rape cases, which may compromise other components used to measure sexual violence. The prevalence of 59.8% in this study was higher than in another study done in Nigeria among adolescents with learning disabilities, which also revealed that 23.3% [28] were sexually abused. The possible reason might be that the Nigeria study did not use a standard sexual measurement tool, they used a single question to identify sexually abused cases by asking participants to agree or disagree with questions.

In this study, residence is one of the risk factors for sexual violence. Living in a rural residence increased the probability of sexual violence compared with those living in an urban residence. The reason could be due to the rural community's negative attitude toward people with disabilities and socio-cultural positive contributions for sexual violence [29], as well as a lack of sexual information.

Age is another significant factor associated with sexual violence. Females aged 25 to 49 years old experienced more sexual violence than those aged 15 to 24 years old. This evidence is in line with the meta-analysis study [27]. The possible justification might be that the increased sexual desire of females with disabilities and their dependence on other people for care and personal assistance placed them at a higher risk of sexual violence. The odds of sexual violence were higher among reproductive-age females with hearing disabilities (3 folds) compared with those with vision disabilities. This evidence is supported by meta-analysis study [27] and a qualitative study conducted in South Africa [30]. This could be because people with hearing disabilities have little information about sexuality. Having access to sexuality information was also found to be a significant predictor of sexual violence among reproductive-age females with disabilities. Those who had no sexuality information had a higher chance of experiencing sexual violence compared with reproductive-age females with disabilities who had sexuality information. Although this report is contrary to the study conducted in Canada [22], due to different myths about sexual health information for people with disabilities being limited [31] and having low sexuality education knowledge [32], having information about sexuality

(healthy relationships, boundaries, and communication) might be used to prevent sexual violence [20, 22].

These findings could be useful for various stakeholders working with people with disabilities to develop appropriate strategies to combat the dangers of hidden sexual violence. On the other hand, this study used standard sexual violence measuring tools to determine the prevalence of sexual violence [24]. The other strength of this study was considering rural resident reproductive-age females with disabilities. However, due to feasibility issues, this study did not include reproductive-age females with mental disabilities. Another limitation of this study was its exclusion of women over the age of 50, despite the possibility of sexual violence. Recall bias could also be a limitation of the study.

Conclusions

Sexual violence among reproductive-age females with disabilities is noticeably high in central Sidama National Regional State, Ethiopia. Residence, sexuality information, age, and disability types were associated factors with sexual violence. Therefore, policymakers need to design specific strategies to tackle myths (especially in rural communities) that could discriminate against people with disabilities in sexuality education and strengthen sexuality education. Giving information and education about sexuality to deaf reproductive-age females with disabilities by using appropriate teaching aids (sign languages) is also critical and significant in preventing sexual violence. The magnitude of sexual violence among reproductive-age females with a mental disability may be the worst, and it needs further investigation [7, 33].

Acknowledgements

The authors would like to thank the data collectors and the study participants for their valuable contributions to this study. We are also grateful to the Sidama National Regional State Public Health Institute and selected woredas and kebeles for their assistance and permission to undertake this research.

Authors' contributions

ZT, AG, and TG designed and wrote the proposal. ZT analyses and writes the manuscript. AG and TG commented on and edited the manuscript. All authors read and approved the final manuscript.

Funding

The author(s) received no financial support for this study, but Hawassa University covered the data collectors per diem.

Availability of data and materials

All data on which the results based are provided with in the manuscript.

Declarations

Ethics approval and consent to participate

The study fulfilled with the declaration of Helsinki and approved by the Institutional Review Board at the College of Medicine and Health Sciences of Hawassa University with an approval reference number of (Ref. No.): IRB/143/14. After approval, a support letter was written to the Sidama National Regional Public Health Institute. Then, after obtaining the support letter from

Sidama National Regional Public Health Institute, the permission and cooperation letter were given to the woreda health offices. Finally, the woreda health offices wrote a permission letter to selected kebeles, asking them to cooperate and give consent to conduct the study.

After being informed about the purpose, their rights to participation, and the potential benefits and risks of the study, written informed consent was obtained from the study participants and their guardians to collect the data.

Consent for publication

N/A.

Competing interests

All the authors declared that there were no financial or personal competing interests.

Received: 29 May 2023 Accepted: 23 June 2023

Published online: 04 July 2023

References

- Judith H. Definition and classification of disability. New York: UNICEF; 2014.
- World Health Organization. Towards a common language for functioning, disability, and health: ICF. Geneva; 2002.
- Mueller-Johnson K, Eisner MP, Obsuth I. Sexual victimization of youth with a physical disability: an examination of prevalence rates, and risk and protective factors. *J Interpers Violence*. 2014;29(17):3180–206.
- Don MacKay. The United Nations Convention on the rights of persons with disabilities. *Syracuse J Int Law Commerce*. 2006;34:323.
- Hosseinpoor AR, Stewart Williams JA, Gautam J, Posarac A, Officer A, Verdes E, et al. Socioeconomic inequality in disability among adults: a multicountry study using the World Health Survey. *Am J Public Health*. 2013;103(7):1278–86.
- Rohleder P, Braathen SH, Carew MT. Disability and sexual health: A critical exploration of key issues. New York, Routledge: Routledge; 2019. p. 850–1.
- Dammeyer J, Chapman M. A national survey on violence and discrimination among people with disabilities. *BMC Public Health*. 2018;18(1):1–9.
- Bowers Andrews A, Veronen LJ. Sexual assault and people with disabilities. *J Soc Work Hum Sex*. 1993;8(2):137–59.
- Malihi ZA, Fanslow JL, Hashemi L, Gulliver PJ, McIntosh TK. Prevalence of nonpartner physical and sexual violence against people with disabilities. *Am J Prev Med*. 2021;61(3):329–37.
- Ledingham E, Wright GW, Mitra M. Sexual violence against women with disabilities: experiences with force and lifetime risk. *Am J Prev Med*. 2022;62(6):895–902.
- Fomba H, Ouedraogo HG, Cissé K, Kouanda S. Prevalence and factors associated to the occurrence of sexual violence among people with disabilities in Burkina Faso. *Psychol Health Med*. 2022;34(1):11–7.
- Kvam MH, Loeb M, Tamsb K. Mental health in deaf adults: symptoms of anxiety and depression among hearing and deaf individuals. *J Deaf Stud Deaf Educ*. 2007;12(1):1–7.
- Mitra M, Mouradian VE, McKenna M. Dating violence and associated health risks among high school students with disabilities. *Matern Child Health J*. 2013;17(6):1088–94.
- Basile KC, Breiding MJ, Smith SG. Disability and risk of recent sexual violence in the United States. *Am J Public Health*. 2016;106(5):928–33.
- Puri M, Misra G, Hawkes S. Hidden voices: prevalence and risk factors for violence against women with disabilities in Nepal. *BMC Public Health*. 2015;15(1):1–11.
- Scolese A, Asghar K, Pla Cordero R, Roth D, Gupta J, Falb KL. Disability status and violence against women in the home in North Kivu, Democratic Republic of Congo. *Glob Public Health*. 2020;15(7):985–98.
- Olaleye AO, Anoemuah OA, Ladipo OA, Delano GE, Idowu GF. Sexual behaviours and reproductive health knowledge among in-school young people with disabilities in Ibadan, Nigeria. *Health Educ*. 2007;107(2):208–18.
- Ademokoya Julius Abiodun, Igbeneghu Patience Ehimhen. Sexual behaviours and contraceptive use among adolescents with learning disabilities in Ibadan north local government area, Oyo state, Nigeria. *European Journal of Special Education Research*. 2016;1(2):50–67.
- YimerAwolSeid MLM. Modern contraceptive methods knowledge and practice among blind and deaf women in Ethiopia. A cross-sectional survey. *BMC Women's Health*. 2019;19(1):1–13.
- Nyokangi D, Phasha N. Factors contributing to sexual violence at selected schools for learners with mild intellectual disability in South Africa. *J Appl Res Intellect Disabil*. 2016;29(3):231–41.
- Burke E, Kébé F, Flink I, van Reeuwijk M, le May A. A qualitative study to explore the barriers and enablers for young people with disabilities to access sexual and reproductive health services in Senegal. *Reprod Health Matters*. 2017;25(50):43–54.
- Yoshida K, DuMont J, Odette F, Lysy D. Factors associated with physical and sexual violence among Canadian women living with physical disabilities. *Health Care Women Int*. 2011;32(8):762–75.
- Tenaw Z, Gari T, Gebretsadik A. Contraceptive use among reproductive-age females with disabilities in central Sidama National Regional State, Ethiopia: a multilevel analysis. *PeerJ*. 2023;11: e15354.
- World Health Organization. WHO multi-country study on women's health and domestic violence against women: initial results on prevalence, health outcomes and women's responses. Geneva: World Health Organization; 2005.
- Kleiman E. Understanding and analyzing multilevel data from real-time monitoring studies: An easily-accessible tutorial using R. 2017.
- Kohli A, Perrin N, Mpanano RM, Banywesize L, Mirindi AB, Banywesize JH, et al. Family and community driven response to intimate partner violence in post-conflict settings. *Soc Sci Med*. 2015;146:276–84.
- Mailhot Amborski A, Bussi eres E-L, Vaillancourt-Morel M-P, Joyal CC. Sexual violence against persons with disabilities: a meta-analysis. *Trauma Violence Abuse*. 2021;23(4):1330–43.
- Ademokoya JA, Igbeneghu PE. Sexual behaviours and contraceptive use among adolescents with learning disabilities in Ibadan north local government area, Oyo state, Nigeria. *Eur J Special Educ Res*. 2016;1(2). <https://doi.org/10.5281/zenodo.60199>.
- Sandberg L. Backward, dumb, and violent hillbillies? Rural geographies and intersectional studies on intimate partner violence. *Affilia*. 2013;28(4):350–65.
- Burke Eva, K eb e Fatou, Flink Ilse, van Reeuwijk Miranda, le May Alex. A qualitative study to explore the barriers and enablers for young people with disabilities to access sexual and reproductive health services in Senegal. *Reprod Health Matters*. 2017;25(50):43–54.
- Silverberg C, Kaufman M. The ultimate guide to sex and disability: For all of us who live with disabilities, chronic pain, and illness: Cleis Press. 2016.
- McCabe MP, Cummins RA, Reid SB. An empirical study of the sexual abuse of people with intellectual disability. *Sex Disabil*. 1994;12(4):297–306.
- Lin L-P, Yen C-F, Kuo F-Y, Wu J-L, Lin J-D. Sexual assault of people with disabilities: results of a 2002–2007 national report in Taiwan. *Res Dev Disabil*. 2009;30(5):969–75.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Ready to submit your research? Choose BMC and benefit from:

- fast, convenient online submission
- thorough peer review by experienced researchers in your field
- rapid publication on acceptance
- support for research data, including large and complex data types
- gold Open Access which fosters wider collaboration and increased citations
- maximum visibility for your research: over 100M website views per year

At BMC, research is always in progress.

Learn more biomedcentral.com/submissions

