

RESEARCH

Open Access



A cross-sectional study of women's autonomy and modern contraception use in Zambia

Abigail Mangimela-Mulundano*, Kirsten I. Black and Kate Cheney

Abstract

Background: Modern contraceptive use effectively prevents unwanted pregnancies, promoting maternal and child health and improving the socio-economic well-being of women and their families. Women's autonomy has been shown to increase the uptake of modern contraception use. This research aimed to investigate the relationship between measures of women's autonomy and modern contraception use among partnered women in Zambia.

Methods: This cross-sectional survey study used data from the health census, the 2018 Zambia Demographic Health Survey. We measured women's autonomy using three indices: women's participation in decision-making, women's attitude towards wife-beating and women's household status. Information from 6727 women in a relationship, not pregnant, not planning pregnancy and aged between 15 and 49 years old were analyzed using descriptive statistics and adjusted odds ratios (AOR).

Results: The mean age of respondents was 32 years. Most women lived in rural areas (65%), and 81% were protestant. Current modern contraception use among partnered women was 8.8%. Women's autonomy was significantly associated with modern contraception use. Women with moderate autonomy (AOR = 1.054, *P* value = 0.004, 95% CI 1.048–1.312) and high autonomy (AOR = 1.031, *P* value = 0.001, 95% CI 1.013–1.562) had higher odds of using modern contraception compared to those with low autonomy. Other factors related to modern contraception use included a higher level of education (AOR = 1.181, *P* value = 0.012, 95% CI 1.091–1.783), increased wealth index (AOR = 1.230, *P* value = 0.006, 95% CI 1.105–1.766) and age, 15–24 (AOR = 1.266, *P* value = 0.007, 95% CI 1.182–2.113,) and 25–34 (AOR = 1.163, *P* value = 0.002, 95% CI 1.052–1.273).

Conclusion: This study argues that increasing women's assertiveness to make independent decisions within the household is cardinal to enhancing the uptake of modern contraception in Zambia and other low-and-middle-income countries. Governments and other stakeholders must therefore consider rolling out programs to boost women's autonomy, which in turn would support gender equality and reproductive health.

Keywords: Maternal and child health, Women's autonomy, Modern contraception, Zambia, Demographic health survey

Background

The promotion of sexual and reproductive health including access to effective modern contraceptive methods, is an effective strategy for preventing unwanted pregnancies which can reduce maternal morbidity and mortality including from unsafe abortion [1,

*Correspondence: abigail.mulundano@sydney.edu.au

Faculty of Medicine and Health, The University of Sydney, Sydney, NSW, Australia



© The Author(s) 2022. **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.

2]. Importantly, prevention of unwanted pregnancies reduces the socioeconomic and educational constraints that come with childbirth [1, 2].

Modern contraception use is defined as the use of a range of reliable methods that effectively prevent pregnancy [3–5]. The definition includes female and male sterilization, intra-uterine devices (IUD), implants, injectables, oral contraceptive pills, vaginal rings, hormonal patches, male and female condoms, vaginal barrier methods (including the diaphragm, cervical cap and spermicidal foam, jelly, cream, and sponge), lactational amenorrhea method (LAM) and emergency contraception [4, 5]. This range of family planning options means that women can choose the method that fits their circumstances [5, 6]. In being effective in preventing pregnancy, modern contraception offers women the right to decide the number, timing and spacing of any children, if desired and for greater involvement in other productive activities such as education and employment [5, 7, 8].

In Zambia, the contraception prevalence rate increased from 33% in 2012 to 50% in 2018 and there is now almost universal knowledge of modern contraception among partnered women (99%) [4, 5]. However, actual use of modern methods in this population is still low at 48% and below the target of 58% [4]. In other similar settings, this low uptake of contraception has been attributed to a lack of autonomy in contraceptive decision making. Previous studies in Zambia have explored modern contraception use in association with contraception decision-making and socio-demographic factors [5–9]. The link between women's autonomy defined as the capacity for one to make knowledgeable, independent choices free from external influences and household decision-making among married women in Zambia has been explored in a study using 2013–2014 Zambian Demographic Health Survey (ZDHS). The study found women with greater autonomy were more likely to participate in decision-making that involved daily household purchases [10–12].

Autonomy also enhances women's assertiveness in dealing with sexual and reproductive health choices, but there are limited data in terms of its research and reporting [13, 14]. Autonomy is challenging to measure and, as in the DHS, often relies on composite indices that present a summary score [11–14]. This study sought, for the first time, to explore the association between Zambian women's autonomy (from composite of three indices of women's participation in decision-making, women's attitude towards wife beating (domestic violence) and household status measured by property ownership) and modern contraception use [11–13].

Methods

This cross-sectional survey study used secondary data from the 2018 ZDHS. The details of how this country-wide survey was conducted are described in the ZDHS report [4]. Partnered women (married or cohabiting), not currently pregnant, and not planning for pregnancy before two years were included in the analysis. Written permission was obtained from the DHS program before the start of the project. Confirmation was given to access the datasets on 12 May 2021. The letter for approval is attached and available for review. Procedures for ethical approval are as stated by the DHS website available at: <https://dhsprogram.com/data/>

Dependent variable

The outcome variable was modern contraception use. In the ZDHS survey, participants were asked if they were *currently using any modern contraception*. Modern contraceptives include implants, injectables, male and female sterilisation, intrauterine devices (IUDs), contraceptive pills, patches, vaginal rings, female, and male condoms, lactational amenorrhea and vasectomy, as defined by the WHO [5]. The dependent variable was measured by the proportion of women who responded as 'currently using one form of modern contraceptive'. The responses were dichotomised as either using modern contraception, yes = 1 or not using modern contraception, no = 0.

Independent variables

Women's Autonomy was the independent variable measured by 12 questions that described three dimensions of women's autonomy: women's participation in decision-making, women's attitude towards wife beating and women's household status. The questionnaire is validated by DHS Measure and other similar studies, and the components are not used in isolation, but as whole dimensions [11–14].

Women's participation in decision-making

Respondents were asked about their involvement in decision-making in five areas: contraception use, health care, major household purchases, respondent's earnings and visiting relatives. Decisions regarding contraception use and health care indicate women's ability to make decisions regarding family planning and health, while decisions on significant household purchases indicate decision-making with a partner [7]. Independent decisions about visiting relatives, and spending one's own earnings suggested influence by the partner over women's social life and finances [8]. A score of one [1] was given if women participated in decision-making and zero [0] if they did not participate. A composite index was created with a scale from zero to five, with zero indicating

no involvement and five indicating high participation in decision-making.

Women's attitude towards wife-beating (domestic violence)

Women were also asked about their level of acceptance regarding wife or partner beating in any of the following situations: beating justified if she denies husband/partner sex, neglects children, goes out without informing husband/partner and burns food. A score of zero [0] was given if women responded yes to any of the questions and one if women said no. A composite index was created with a scale of 0 to 5, with zero [0] indicating wife / partner beating justified and five [5] indicating not justified [11–13].

Women's household status

Women's household status was measured by property ownership, such as land or house. Women were asked about ownership of major properties. A score of one [1] was given if women indicated property ownership and

zero [0] if respondents did not own any property [7, 11–13].

Total scores measuring women's autonomy are shown in Table 1. The final autonomy index was created from the summation of the three dimensions of women's liberation, zero [0] to twelve [12] [Cronbach's $\alpha=0.80$ (0.797)].

Control variables

Potential confounders such as women's age, level of education, religion, region of residence, number of children, wealth index group and set up of residence were used as control variables. These were measured as follows: level of education (0=no education; 1=primary education; 2=secondary education; 3=higher education), household wealth quintiles (0=poorest; 1=poorer; 2=middle; 3=richer; 4=richest), Urban or rural residence (0=urban; 1=rural), religious affiliations (0=protestant, catholic=1, Islam=2 other=3), and number of children (zero=1, one to three=2, 4 and above=3). The above indicators were chosen based on associations observed and validated in other studies [9, 11, 16, 17].

Table 1 Summary of measure of women's autonomy

| Questions | Possible outcomes | Score |
|--|------------------------|-------|
| 1 Women's Participation in Decision-Making Who makes the final decision Regarding? | | |
| a. Contraception use | Respondent alone | 1 |
| b. Health care | Respondent and partner | 1 |
| c. Large Household purchases | Respondent and other | 1 |
| d. Respondent's earnings | Husband or partner | 0 |
| e. Visit to relatives | Someone else | 0 |
| | Other | 0 |
| <i>Total score for participation in decision-making (A) = score(a) + score(b) + score(c) + score(d) + score(e)</i> | | |
| <i>Maximum attainable score of 5</i> | | |
| 2 Women's Attitude towards Wife Beating Wife beating justified if: | | |
| a. She denies husband/partner sex | Yes | 0 |
| b. Neglect's children | No | 1 |
| c. Burns food | Do not know | 0 |
| d. Goes out without informing their husband/partner | | |
| e. If argues with husband/partner | | |
| <i>Total score for women's attitude towards wife beating (B) is score(a) + score(b) + score(c) + score(d) + score(e)</i> | | |
| <i>A maximum attainable score of 5</i> | | |
| 3 Women's Household Status Woman: | | |
| a. Owns land | Does not own | 0 |
| b. Owns a house | Owns alone | 1 |
| | Joint ownership | 1 |
| | Both alone and jointly | 1 |
| <i>Total score for Women's Household status (C) is score(a) + score(b)</i> | | |
| <i>Maximum attainable score of 5</i> | | |
| The Overall score for women's Autonomy is A + B + C | | |
| The maximum attainable score of 12: A score of 0–4 = low autonomy, 4–8 = moderate autonomy and 8–12 = high autonomy | | |

Statistical analysis

Data analysis was conducted using Windows Statistics Package for Social Sciences version 25 (IBM-SPSS). Bivariate and multivariate analyses examined the relationships between independent and outcome variables. Bivariate associations were examined between dimensions of women's autonomy, autonomy tertiles and modern contraception use. Multivariate logistic regressions were used to investigate the correlation between women's autonomy and contraceptive use and other socio-demographic variables. The maximum likelihood estimates of odds ratio (OR) and 95% confidence interval (CI) adjusted for necessary variables were calculated.

Results

The study included data for 6727 partnered women obtained from the 13 683 women in the 2018 ZDHS.

We found that 91% of women were not using modern contraceptives and 72% of the women had low autonomy levels. Women with moderate and high autonomy levels were more likely to use modern contraception than those with lower autonomy levels. Table 2 summarizes the association between contraceptive use and socio-demographic factors of partnered women in Zambia.

Multivariate analysis

Table 3 illustrates the percentage of partnered women by dimensions of women's autonomy. While Table 4 shows the results from the multivariate analysis. Women's autonomy was significantly related to modern contraception use and other covariates used in the study, such as education, wealth index and age.

Discussion

This study is the first to investigate the association between women's autonomy and modern contraception use among partnered women in Zambia. Of the 6727 partnered women analysed in this study, only 8.8% of women were currently using a modern method of contraception. Women with moderate and high autonomy levels were significantly associated with modern contraception use, although over 70% had low levels of autonomy. Other factors related to increased modern contraception use included increased level of education, age and increased wealth. Our result differs from the 2018 ZDHS report, where modern contraception use was reported to be 43%. The difference between our findings and the ZDHS findings could be due to the differing variables used in the data analysis. Nevertheless, both results obtained are still lower than the set target

Table 2 Percentage of partnered women and crude odds ratio of modern contraceptive use and selected demographic variables (N=672)

| Variable | Using modern contraceptives | | | <i>P</i> value |
|-----------------------------|-----------------------------|-----------------------|-------------------------|----------------|
| | Frequency (%) | Crude odds ratio (OR) | 95% confidence interval | |
| Age (mean = 32 years) | | | | |
| 15–24 | 22.6 | 2.021 | 1.653–2.475 | 0.003 |
| 25–34 | 37.5 | 1.063 | 1.019–1.831 | 0.000 |
| 35–49 | 39.8 | Ref | | |
| Education | | | | |
| No education | 10.5 | Ref | | |
| Primary education | 52 | 0.228 | 0.144–0.363 | 0.000 |
| Secondary | 31.9 | 0.416 | 0.308–0.563 | 0.000 |
| Higher | 5.5 | 3.123 | 2.078–3.410 | 0.002 |
| Setting of residence | | | | |
| Urban | 35 | 1.835 | 1.547–2.178 | 0.000 |
| Rural | 65 | Ref | | |
| Wealth index | | | | |
| Poorest | 22.9 | 0.306 | 0.232–0.403 | 0.000 |
| Poorer | 21.3 | 0.351 | 0.268–0.460 | 0.000 |
| Middle | 20.8 | 0.483 | 0.376–0.620 | 0.000 |
| Richer | 17.3 | 2.663 | 1.932–3.731 | 0.002 |
| Richest | 17.7 | Ref | | |
| Number of children | | | | |
| 0 | 3.2 | Ref | | |
| 1–3 | 48.3 | 1.734 | 1.313–3.992 | 0.003 |
| 4+ | 48.5 | 1.110 | 0.936–1.317 | 0.230 |
| Women's autonomy (tertiles) | | | | |
| Low | 71.9 | Ref | | |
| Moderate | 19.5 | 1.690 | 1.160–2.462 | 0.001 |
| High | 8.5 | 1.414 | 1.263–2.147 | 0.000 |

of 50% as stipulated in the 2017 National Health Strategic Plan [3, 4].

Other studies evaluating women's autonomy and modern contraception use have similarly used demographic health surveys to explore this question [10, 18–20]. Women with high or moderate autonomy were more likely to be assertive enough to make independent choices regarding modern contraception than those with low autonomy [15, 21, 22]. In reaching women's autonomy and level of education, women's autonomy could bear more influence on contraception use, as seen from a Pakistan study which found that women's decision-making autonomy was more significantly associated with contraception use than education [16]. Other cultural factors, such as those that promote

Table 3 Percentage of partnered women by dimensions of women's autonomy (N=6727)

| Autonomy Variable | Frequency (%) | Using modern contraceptives | | P value |
|----------------------------------|---------------|-----------------------------|-------------|---------|
| | | Crude odds ratio (OR) | 95% CI | |
| Participation in decision making | | | | |
| Scores | | | | |
| 0 | 5.1 | 1.168 | 1.047–1.303 | 0.005 |
| 1 | 8.3 | | | |
| 2 | 11.0 | | | |
| 3 | 16.9 | | | |
| 4 | 58.7 | | | |
| Attitude towards wife beating | | | | |
| 0 | 16.6 | 1.080 | 1.032–1.130 | 0.001 |
| 1 | 9.3 | | | |
| 2 | 7.9 | | | |
| 3 | 8.2 | | | |
| 4 | 8.1 | | | |
| 5 | 50.0 | | | |
| Woman's household status | | | | |
| 0 | 40.8 | 0.808 | 0.732–0.891 | 0.000 |
| 1 | 22.0 | | | |
| 2 | 37.2 | | | |
| Women's autonomy (tertiles) | | | | |
| Low | 71.9 | Ref | | |
| Moderate | 19.5 | 1.690 | 1.160–2.462 | 0.006 |
| High | 8.5 | 1.414 | 0.931–2.147 | 0.001 |

men as heads of relationships, may influence decision-making in women who are educated [23–25]. All these issues are essential indicators of gender equality and are women's rights issues [26].

Formal education improves women's understanding of sexual and reproductive health, including modern contraception use and women's decision-making, as was found in another study in Zambia [10]. However, most women in Zambia still do not have formal education, which can partly explain the low contraception use among partnered women [19]. Age was another feature associated with contraception use and reflects findings reported in similar studies [20]. Like other sub-Saharan African countries, Zambia has a lower fertility age; the median age at first birth in Zambia is 19.2 among those aged between 20 and 49 [4]. Desire to delay pregnancy owing to younger age and to wanting a longer birth interval could be additional factors as to why modern contraception use was higher among younger women. Wealthy women were more likely to report modern contraception use than those in the poorest category; this result is similar to findings from studies undertaken in Ghana, which showed wealthy women had a higher likelihood of using modern contraceptives [21, 22, 31, 32]. The poverty level

in Zambia stands at 88%, with about 60% of its population living below the poverty line of less than \$1 US per day [19, 33, 34].

Based on the findings in this study, women's autonomy was significantly associated with modern contraception use among partnered women in Zambia. Although we did not analyse wife-beating as an independent factor, other studies have found that women subjected to domestic violence or intimate partner violence are less likely to use contraception or access health care [35–37].

Our findings show that modern contraception use among partnered women in Zambia is low. This could explain the high maternal mortality rate due to unplanned pregnancies [4]. To achieve the sustainable development goals (SDG 3 and 5), programs and policies that encourage women to get involved in decision-making must be promoted. Women were empowered to take up leadership roles at all levels of society [1, 2, 5]. Women must be given some degree of independence in decision-making regarding sexual and reproductive health.

The findings of this study highlight the importance of gender equality in decision making by affirming the evidence finding that enhancing women's autonomy improves the uptake of contraception use [24, 25].

Table 4 Adjusted odds ratio for multivariable logistic regression models predicting modern contraceptive use by selected variable

| Variable | Adjusted odds ratio | 95% confidence interval | P value |
|----------------------|---------------------|-------------------------|---------|
| Age | | | |
| 15–24 | 1.266 | 1.182–2.113 | 0.007 |
| 25–34 | 1.163 | 1.052–1.273 | 0.002 |
| 35–49 | Ref | | |
| Education | | | |
| No education | Ref | | |
| Primary education | 1.516 | 0.744–3.089 | 0.321 |
| Secondary | 1.073 | 0.666–1.728 | 0.360 |
| Higher | 1.181 | 1.091–1.783 | 0.012 |
| Number of children | | | |
| 0 | 2.041 | 1.102–3.780 | 0.037 |
| 1–3 | 2.221 | 1.257–3.924 | 0.001 |
| 4+ | Ref | | |
| Wealth index | | | |
| Poorest | 0.692 | 0.562–0.841 | 0.215 |
| Poorer | 0.391 | 0.037–0.960 | 0.290 |
| Middle | 1.840 | 1.147–2.952 | 0.018 |
| Richer | 1.230 | 1.105–1.766 | 0.006 |
| Richest | Ref | | |
| Setting of residence | | | |
| Urban | Ref | | |
| Rural | 0.838 | 0.592–0.914 | 0.014 |
| Women's autonomy | | | |
| Low | Ref | | |
| Moderate | 1.054 | 1.048–1.312 | 0.004 |
| High | 1.03 | 1.013–1.562 | 0.001 |

Strategies to improve women's autonomy include improving women's socioeconomic status, enhancing their education and dismantling of cultural laws that support gender inequality [14, 26]. Increasing the socio-economic status of women is one of the most powerful tools that impacts significantly on reproductive choice [26].

Women's autonomy could also be improved by enhancing women's level of education [16]. This can improve self-awareness and enhance knowledge enabling women to learn more about self-value through interactions with others [27]. The Zambian government developed an education policy allowing pregnant girls to continue their education to reduce early marriages and retain girls in schools [28]. Nevertheless, more targeted policies that would promote already married women, particularly in rural areas, to have access to a basic level of education are required [29]. Male involvement, particularly in sexual and reproductive health, is another strategy that could enhance women's autonomy [9, 30, 38, 39]. It promotes

confidence and enhances morale towards positive decisions, consequently improving the uptake of sexual reproductive health services such as contraception [30, 40, 41]. Traditional norms and cultural beliefs are barriers that inhibit women's autonomy [23]. Therefore, abolishing certain practices, such as patriarchal norms, that inhibit women's participation in households would empower women to participate in decision-making [23, 38, 39].

Limitations and strengths of the study

Limitations of this study include the use of current women's contraception use status, which may not reflect past and future contraception choices. In addition, autonomy was only measured using women's responses without involving responses from their partners and made the assumption that all partners were male. Moreover, the study was cross-sectional, used secondary data for analysis, could only explore associations, and could not infer causality. This means that results must be interpreted with caution. A longitudinal study design may be able to better study the relationship. Despite the limitations, this study's strengths included using a large representative sample from a reputable source, the DHS, that uses sound sampling methods with a high response rate. In addition to this, previously validated measures were used in this study [31, 32].

Conclusion

Our study is the first to investigate the relationship between women's autonomy and modern contraception use among partnered women in Zambia. In HIC, the modernisation of society and the introduction of policies that enhance equality irrespective of sex, religious affiliations, gender and colour have created a community that enhances women's autonomy [33, 34]. Therefore, adapting these policies to LMIC could be beneficial in strengthening women's autonomy, thereby improving the uptake of sexual and reproductive health services. Thus, there is a need for continued efforts to roll out interventions to enhance women's freedom to reduce gender inequality.

Acknowledgements

I want to acknowledge the Australian Government for awarding me the Australia Awards Scholarship that enabled me to carry out this study. My thanks also go to the Ministry of Health Zambia for releasing me to undertake further studies in Australia. Lastly, thanks to my co-authors, Professor Kirsten Black and Doctor Kate Cheney, for all their input.

Author contributions

AM-M led the design, evaluation, proposal development and ethics submission, support recruitment and data analysis and preparation of the manuscript. KB provided supervision, contributed to the evaluation proposal, and contributed to the analysis and manuscript development. KC contributed to

manuscript development and submission. All authors read and approved the final manuscript.

Funding

No funding was sought to undertake this research; however, Dr Mulundano was supported as a recipient of an Australia Awards Scholarship from the Australian government.

Availability of data and materials

The datasets generated during and analysed during the current study consent to participate available from the corresponding author on reasonable request from DHS-Measure.

Declarations

Ethics approval and consent to participate

Written permission was obtained from the DHS program before the start of the project. Conformation was given to access the datasets on 12 May 2021. The Demographic and Health Surveys (DHS) program uses no ethics reference number. The letter for approval is attached and available for review. The data has been used according to the Declaration of Helsinki. Procedures for ethical approval are stated by the DHS website: <https://dhsprogram.com/data/>. We have not used any identifying data or images, and as such, this is not applicable.

Consent for publication

Not applicable.

Competing interests

No competing interests have been identified.

Received: 9 November 2021 Accepted: 30 November 2022

Published online: 27 December 2022

References

- United Nations. Sustainable development goals [Internet]. United Nations, 2018 [Cited June 1, 2021] <https://sdgs.un.org/goals>.
- (WHO) 3 The World HEALTH Organisation. Maternal mortality [Internet]. 2019 [cited 2021 Mar 10]. <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>.
- Zambia M of H. National Health Strategic Plan 2017–2021 [Internet]. 2016 [cited 2021 Mar 10]. https://www.moh.gov.zm/?page_id=5620.
- Zambia Statistics Agency, Ministry of Health, University Teaching Hospital Virology Laboratory, ICF. Zambia Demographic and Health Survey 2018. 2019. p. 540.
- The World Health Organisation. Topic- Contraception [Internet]. [cited 2021 Jun 1]. https://www.who.int/health-topics/contraception#tab=tab_1.
- The World Health Organisation. High rates of unintended pregnancies linked to gaps in family planning services: New WHO study [Internet]. <https://www.who.int/item/25-10-2019-high-rates-of-unintended-pregnancies-linked-to-gaps-in-family-planning-services-new-who-study>.
- Ghebreyesus TA, Kanem N. Defining sexual and reproductive health and rights for all. *The Lancet*. 2018;391(10140):2583–5.
- Ahmed S, Choi Y, Rimon JG, Alzourma S, Gichangi P, Guiella G, Kayembe P, Kibria SP, Makumbi F, OlaOlorun F, Omoluabi E. Trends in contraceptive prevalence rates in sub-Saharan Africa since the 2012 London Summit on Family Planning: results from repeated cross-sectional surveys. *Lancet Glob Health*. 2019;7(7):e904–11.
- Ntoimo LF, Chirwa-Banda P. Examining the role of couples' characteristics in contraceptive use in Nigeria and Zambia. *Afr J Reprod Health*. 2017;21(4):93–101.
- Thankian K. Factors affecting women's autonomy in household decision-making among married women in Zambia. *Journal of Scientific Research and Reports*. 2020;1:109–23.
- Seymour G, Peterman A. Understanding the measurement of women's autonomy: illustrations from Bangladesh and Ghana.
- Senderowicz L. Contraceptive autonomy: conceptions and measurement of a novel family planning indicator. *Stud Fam Plann*. 2020;51(2):161–76.
- Sougou NM, Bassoum O, Faye A, Leye MM. Women's autonomy in health decision-making and its effect on access to family planning services in Senegal in 2017: a propensity score analysis. *BMC Public Health*. 2020;20:1–9.
- Adokiya MN, Boah M, Adampah T. Women's autonomy and modern contraceptive use in Ghana: a secondary analysis of data from the 2014 Ghana Demographic and Health Survey. *Eur J Contracept Reprod Health Care*. 2021;19:1–7.
- Yaya S, Uthman OA, Ekhollenetale M, Bishwajit G. Women empowerment as an enabling factor of contraceptive use in sub-Saharan Africa: a multilevel analysis of cross-sectional surveys of 32 countries. *Reprod Health*. 2018;15(1):1–2.
- Saleem S, Bobak M. Women's autonomy, education and contraception use in Pakistan: a national study. *Reprod Health*. 2005;2(1):1–8.
- Allendorf KA. Couples' reports of women's autonomy and health-care use in Nepal. *Stud Fam Planning*. 2007;38(1):35–46.
- Nadeem M, Malik MI, Anwar M, Khurram S. Women decision making autonomy as a facilitating factor for contraceptive use for family planning in Pakistan. *Soc Indic Res*. 2021;19:1–9.
- Central Intelligence Agency (CIA), Zambia-World Factbook CIA [Internet]. [cited 2021 Mar 15]. <https://www.cia.gov/the-world-factbook/countries/zambia/>
- Alabi O, Odimegwu CO, De-Wet N, Akinyemi JO. Does female autonomy affect contraceptive use among women in northern Nigeria? *Afr J Reprod Health*. 2019;23(2):92–100.
- Blackstone SR. Women's empowerment, household status and contraception use in Ghana. *J Biosoc Sci*. 2017;49(4):423–34.
- Mutombo N, Bakibinga P. The effect of joint contraceptive decisions on using Injectables, Long-Acting and Permanent Methods (I LAPMs) among married female (15–49) contraceptive users in Zambia: a cross-sectional study. *Reprod Health*. 2014;11(1):1–8.
- Bourdieu P. Cultural reproduction and social reproduction. Knowledge, education, and cultural change. London: Routledge; 2018. p. 71–112.
- Adedze M, Osei-Yeboah R. Underuse of modern contraception in sub-Saharan Africa: are there implications for sustainable development and climate change? A review of the literature. *Eur J Contracept Reprod Health Care*. 2019;24(4):314–8.
- Senarath U, Gunawardena NS. Women's autonomy in decision-making for health care in South Asia. *Asia Pacific J Public Health*. 2009;21(2):137–43.
- Chang W, Tumlinson K. Free access to a broad contraceptive method mix and women's contraceptive choice: evidence from sub-Saharan Africa. *Stud Fam Plann*. 2021;52(1):3–22.
- Vedam S, Stoll K, McRae DN, Korchinski M, Velasquez R, Wang J, Partridge S, McRae L, Martin RE, Jolicoeur G, CCinBC Steering Committee. Patient-led decision making: measuring autonomy and respect in Canadian maternity care. *Patient Educ Couns*. 2019;102(3):586–94.
- Ministry of Education Zambia. Education and skills sector plan 2017–2021 [Internet] Zambian government 2017 [cited 2021 Jun 2]. https://planipolis.iiep.unesco.org/sites/default/files/resources/zambia_-_education-and-skills-sector-plan-2017-2021.pdf.
- Sano Y, Antabe R, Atuoye KN, Braimah JA, Galaa SZ, Luginaah I. Married women's autonomy and post-delivery modern contraceptive use in the Democratic Republic of Congo. *BMC Womens Health*. 2018;18(1):1–7.
- Osamor PE, Grady C. Women's autonomy in health care decision-making in developing countries: a synthesis of the literature. *Int J Women's Health*. 2016;8:191.
- Bhandari TR, Dangal G, Sarma PS, Kutty V. Construction and Validation of a Women's Autonomy Measurement Scale concerning Utilization of Maternal Health Care Services in Nepal. *J Nepal Med Assoc*. 2014;52(195):925–34.
- AMCSS-SCTIMSTT. Construction and Validation of Women's Autonomy Measurement Scale: Demographic Studies in Nepal.
- Ogu RN, Agholor KN, Okonofua FE. Engendering the attainment of the SDG-3 in Africa: overcoming the socio-cultural factors contributing to maternal mortality. *Afr J Reprod Health*. 2016;20(3):62–74.
- Kavanaugh ML, Jerman J. Contraceptive method use in the United States: trends and characteristics between 2008, 2012 and 2014. *Contraception*. 2018;97(1):14–21.

35. Olorunsaiye CZ, Huber LB, Laditka SB, Kulkarni S, Boyd AS. Associations between women's perceptions of domestic violence and contraceptive use in seven countries in West and Central Africa. *Sex Reprod Healthc.* 2017;1(13):110–7.
36. Bishwajit G, Yaya S. Domestic violence: a hidden barrier to contraceptive use among women in Nigeria. *Open Access J Contracept.* 2018;9:21.
37. Peek-Asa C, Wallis A, Harland K, Beyer K, Dickey P, Saftlas A. Rural disparity in domestic violence prevalence and access to resources. *J Womens Health.* 2011;20(11):1743–9.
38. Kriel Y, Milford C, Cordero J, Suleman F, Bekinska M, Steyn P, Smit JA. Male partner influence on family planning and contraceptive use: perspectives from community members and healthcare providers in KwaZulu-Natal, South Africa. *Reprod Health.* 2019;16(1):1–5.
39. Kabir R, Kordowicz M. Exploring the relationship between intimate partner violence and contraception use by Tanzanian women. *Health Care Women Int.* 2021;42(10):1220–33.
40. Agyekum MW, Henry EG, Kushitor MK, Obeng-Dwamena AD, Agula C, Opoku Asuming P, Toprah T, Agyei-Asabere C, Shah I, Bawah AA. Partner support and women's contraceptive use: insight from urban poor communities in Accra, Ghana. *BMC Womens Health.* 2022;22(1):1.
41. Bagade T, Chojenta C, Harris M, et al. A women's rights-based approach to reducing child mortality: data from 193 countries show that gender equality does affect under-five child mortality. *Matern Child Health J.* 2022;26:1292–304. <https://doi.org/10.1007/s10995-021-03315-z>.

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

