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Factors influencing the desire to limit childbearing among in-union women in selected Southern African countries: A pooled analysis

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Abstract

High fertility strains national resources, making it crucial to understand factors influencing women's desire to limit childbearing. This study examined the socio-demographic factors associated with in-union women's desire to limit childbearing using Demographic and Health Survey data from Angola, Lesotho, Malawi, Namibia, South Africa, Zambia, and Zimbabwe. A weighted sample of 47669 women aged 15-49 was analysed using binary logistic regression. Overall, 39.4% of women desired to limit childbearing. Key associated factors included age, level of education, employment status, age at first birth, age at first marriage, ideal number of children, number of living children, contraceptive use, household wealth, and place of residence. Older women, those with secondary or higher education, those whose ideal number of children was one child, and those with six or more living children were more likely to express a desire to limit childbearing. These findings highlight the need for targeted reproductive health policies and interventions tailored to women's reproductive preferences in Southern Africa. *(Afr J Reprod Health 2025; 29 [7]: 13-26).*

Keywords: desire to limit childbearing, fertility preferences, reproductive health, Southern Africa, women's health

Résumé

Une fécondité élevée pèse sur les ressources nationales, ce qui rend cruciale la compréhension des facteurs influençant le désir des femmes de limiter leurs naissances. Cette étude a examiné les facteurs sociodémographiques associés au désir des femmes en union de limiter leurs naissances, à partir des données des Enquêtes démographiques et de santé (EDS) menées en Angola, au Lesotho, au Malawi, en Namibie, en Afrique du Sud, en Zambie et au Zimbabwe. Un échantillon pondéré de 47 669 femmes âgées de 15 à 49 ans a été analysé par régression logistique binaire. Au total, 39,4 % des femmes souhaitaient limiter leurs naissances. Les principaux facteurs associés étaient l'âge, le niveau d'éducation, la situation professionnelle, l'âge à la première naissance, l'âge au premier mariage, le nombre idéal d'enfants, le nombre d'enfants vivants, l'utilisation de contraceptifs, le patrimoine du ménage et le lieu de résidence. Les femmes plus âgées, celles ayant un niveau d'études secondaires ou supérieures, celles dont le nombre idéal d'enfants est d'un enfant et celles ayant six enfants vivants ou plus étaient plus susceptibles d'exprimer le désir de limiter leurs naissances. Ces résultats soulignent la nécessité de politiques et d'interventions ciblées en matière de santé reproductive, adaptées aux préférences reproductives des femmes en Afrique australe. *(Afr J Reprod Health 2025; 29 [7]: 13-26).*

Mots-clés: : désir de limiter les naissances, préférences en matière de fertilité, santé reproductive, Afrique australe, santé des femmes

Introduction

The fertility rate is one of the most important indicators used to evaluate a country's development and progress.[1] Its implications extend beyond public health and encompass other aspects of human well-being.[2,3] A country's fertility rate is linked to its economic well-being.[4] High fertility, driven by increased childbearing, has the potential to constrain resources, impacting the workforce, healthcare, education and social services.[4,5] On the other hand, persistently low fertility rates can result in an ageing population, affecting workforce availability and economic productivity.[4,6] Monitoring fertility trends and childbearing patterns provides valuable insights into a country's population growth and its socio-economic dynamics.[7,8] Moreover, fertility rates serve as a direct indicator of women's empowerment and access to family planning services.[9,10] A woman's ability to make informed decisions about childbearing is shaped by her socio-demographic environment, including factors such as poverty, education, and access to healthcare.[3,11] A study by Iyanda *et al*.[12] found that poor reproductive health

knowledge, especially among young women in developing countries, was associated with adverse reproductive health outcomes, reinforcing the need for targeted information and services.

In Southern Africa, reproductive health policies vary in scope and implementation.[13-15] For instance, in Angola, the government implemented programs to address barriers to reproductive health care such as training more health workers.[16] Furthermore, in Zambia, health policies focus on comprehensive sexual education, access to contraceptives and reduced maternal mortality.[17] Overall, the reproductive health policies in Southern African countries have focused on improving access to family planning services, reducing maternal mortality, and promoting gender equality.[10,13,16,17] Reducing the number of children per woman can significantly benefit Southern Africa's economic development. When women have a conviction to limit their family size, they are more likely to use contraception effectively, thus achieving their ideal family size.[18,19] This benefits both individuals and the broader society by reducing poverty and increasing women's participation in economic production, thus stimulating economic progress.[20,21] The Sustainable Development Goals (SDGs) underline the importance of reproductive health. SDG target 3.7 emphasises increasing access to sexual and reproductive health services, which is important for reducing the prevalence of unintended pregnancies and improving maternal health outcomes.[22,23] However, many women, especially those in rural areas and those facing financial barriers, continue to face major issues in accessing and using reproductive health services.[24-26] Addressing these challenges requires a deeper understanding of fertility preferences, particularly women's desire to limit childbearing. In this context, the study conducts a pooled analysis of socio-demographic factors associated with the desire to limit childbearing among in-union women in selected Southern African countries.

Methods

Sources of data

Cross-sectional data for the study was obtained from Demographic and Health Surveys (DHS) conducted between 2013 and 2018 in selected Southern African countries. The countries and surveys included in the analysis are Angola (DHS 2015–16), Lesotho (2014), Malawi (2015–16), Namibia (2013), South Africa (2016), Zambia (2018), and Zimbabwe (2015). Similar methods are used to conduct nationally representative DHSs in various countries, which makes it easier to conduct comparative and pooled analyses within or between countries. The DHS uses a stratified multistage cluster sampling technique to ensure representative and reliable data collection. [27-29] The pooled and weighted sample for the study had 47669 in-union women aged 15–49 years (Table 1).

Study variables

Outcome variable

The outcome variable used in this study is women's desire to limit childbearing. It is based on the response of in-union women (i.e., those who were married or cohabiting) who indicated that they did not want any more children. This measure is consistent with the approach used by the DHS Program and its coding guideline on GitHub — https://github.com/DHSProgram/DHS-Indicators-Stata/blob/master/Chap06_FF/FF_PREF.do. In the surveys, women were asked: "*Would you like to have (a/another) child, or would you prefer not to have any (more) children?*". Those who responded that they wanted no more children were considered as having a desire to limit childbearing and coded as 1 = "Yes" (desire to limit), otherwise 0 = "No" (no desire to limit). This binary categorisation follows previous studies, on this topic, using DHS data.[30,31]

Explanatory variables

The independent variables included in this study are age (years) by group (15–19, 20–24, 25–29, 30–34, 35–39, 40–44, 45–49), level of education (no education, primary, secondary or higher), employment status (unemployed, employed), age (years) at first birth (<15, 15–19, 20–29, 30+), age (years) at first marriage (<15, 15–19, 20–29, 30–39, 40–49), ideal number of children (0, 1, 2, 3, 4, 5, 6+), number of living children (0, 1, 2, 3, 4, 5, 6+), contraceptive use (not using, non-modern, modern), household wealth (poor, average, rich), and place of residence (urban, rural). The categorisation mostly follows DHS reporting standards, allowing for comparability across countries (see the DHS GitHub website).

Table 1: Sample size for the study

Country	Sample size	%
Angola (2015-16)	7 957	16.7
Lesotho (2014)	3 612	7.6
Malawi (2015-16)	16 130	33.8
Namibia (2013)	3 121	6.5
South Africa (2016)	3 050	6.4
Zambia (2018)	7 648	16.0
Zimbabwe (2015)	6 151	12.9
Total	**47 669**	**100.0**

We also included contraceptive use status to assess how current behaviour aligns with fertility preferences – women's desire to limit childbearing. These variables were selected based on a review of recent literature on the topic.[31-34]

Data management and analytical methods

- Data management and statistical analysis were conducted using Stata version 16.[35] Univariate analysis was used to analyse the descriptive statistics of the study population. Bivariate analysis, with a chi-square (χ^2) test of independence, was used to determine the association between the various sociodemographic factors and women's desire to limit childbearing among in-union women from selected Southern African countries. A multivariate logistic regression analysis was performed to measure the relationship between the selected sociodemographic factors and women's desire to limit childbearing. To account for the complex survey design and ensure comparability across countries, we adjusted for clustering, stratification, and sampling weights using the *svyset* command in Stata, with country-specific primary sampling units and strata specified accordingly. Moreover, a multicollinearity test was conducted using the Variance Inflation Factor (VIF), on the explanatory variables; the test showed no multicollinearity between the variables. The minimum VIF was 1.03, the maximum VIF was 2.04, and the mean VIF was 1.43. A p-value of less than 0.05 was considered statistically significant

Results

Characteristics of the study sample

Table 2 presents the distribution of the study participants. The study included a weighted sample of 47669 in-union women. The findings showed that the majority (20.1%) of the study participants were aged 25–29 years and the lowest (6.6%) representation was for those aged 15–19 years. In terms of education, the majority of women (45.8%) in the study had primary education, while the lowest (11.9%) had no education.

The majority of the women (62.9%) were employed. In terms of the age at first birth, the majority of women (54.0%) reported that their age at first birth was 15–19 years, while the lowest was for women (1.5%) aged 30 years and older. In terms of age at first marriage, the majority of women (53.8%) reported age at first marriage 15–19 years. The majority (32.4%) of women reported that they ideally wanted to have four children. In terms of the number of living children, the majority of women (22.1%) reported that they had two living children. The majority (48.6%) of women reported that they were currently using non-modern contraceptive methods, there was also a higher percentage (49.4%) of women who reported non-use of contraception. In terms of household wealth, the majority of the women (42.1%) reported that they were from rich households. The majority of the women (61.9%) were from rural areas. Concerning the country of survey, the majority of the women (33.8%) were from Malawi, while the lowest were from South Africa (6.4%).

Prevalence of in-union women's desire to limit childbearing

Figure 1 represents the pooled prevalence of in-union women and indicates that the overall prevalence of in-union women's desire to limit childbearing in the selected countries was estimated at 39.4%. Table 3 presents the bivariate analysis of factors associated with women's desire to limit childbearing. The findings showed that all the selected sociodemographic factors were significantly associated with women's desire to limit childbearing. The findings also showed that the desire to limit childbearing increased with age. Women aged 45–49 years had a higher (64.3%) desire to limit childbearing, while it was lower (10.7%) among those aged 15–19 years. However, women's desire to limit childbearing decreased with the level of education. Women with no education had a higher (42.2%) desire to limit childbearing, while it was lower (37.7%) among women with secondary or higher education.

Table 2: Distribution of study participants

Characteristics	Frequency	Percentage
Age group (years)		
15-19	3 131	6.6
20-24	9 039	19.0
25-29	9 586	20.1
30-34	9 053	19.0
35-39	7 473	15.7
40-44	5 485	11.5
45-49	3 902	8.2
Level of education		
No education	5 670	11.9
Primary	21 818	45.8
Secondary or higher	20 181	42.3
Employment status		
Unemployed	17 697	37.1
Employed	29 972	62.9
Age at first birth (years)		
Never given birth	2 687	5.6
<15	2 107	4.4
15-19	25 737	54.0
20-29	16 420	34.4
30+	717	1.5
Age at first marriage (years)		
<15	4 345	9.1
15-19	25 650	53.8
20-29	15 627	32.8
30-39	1 831	3.8
40-49	216	0.5
Ideal number of children		
0	1 407	3.0
1	964	2.0
2	6 484	13.6
3	7 571	15.9
4	15 444	32.4
5	5 634	11.8
6+	10 166	21.3
Number of living children		
0	1 998	4.2
1	8 740	18.3
2	10 542	22.1
3	8 812	18.5
4	6 720	14.1
5	4 610	9.7
6+	6 246	13.1
Contraceptive use		
Not using	23 539	49.4
Non-modern	548	1.1
Modern	23 582	49.5
Household wealth		
Poor	18 304	38.4
Average	9 291	19.5
Rich	20 074	42.1
Place of residence		

Urban	18 170	38.1
Rural	29 499	61.9
Country		
Angola	7 957	16.7
Lesotho	3 612	7.6
Malawi	16 130	33.8
Namibia	3 121	6.5
South Africa	3 050	6.4
Zambia	7 648	16.0
Zimbabwe	6 151	12.9
Total	**47 669**	**100.0**

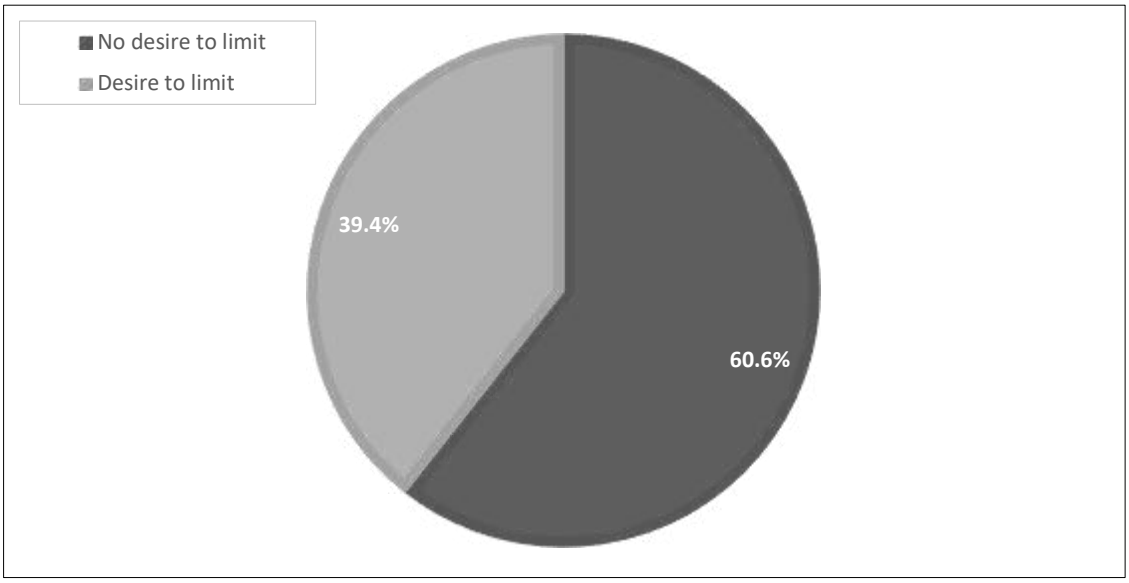

Figure 1: Pooled prevalence of in-union women's desire to limit childbearing

Table 3: Bivariate analysis of factors associated with in-union women's desire to limit childbearing

Characteristics	**Desire to limit childbearing**				**n**	**χ^2 value**	**p-value**
	No		**Yes**				
	%	**CI**	**%**	**CI**			
Age group (years)						6776.5	0.000
15-19	89.3	[87.7-90.7]	10.7	[9.3-12.3]	3 131		
20-24	83.1	[82.0-84.0]	16.9	[16.0-18.0]	9 039		
25-29	71.0	[69.8-72.1]	29.0	[27.9-30.2]	9 586		
30-34	55.6	[54.3-57.0]	44.4	[43.0-45.7]	9 053		
35-39	44.2	[42.6-45.8]	55.8	[54.2-57.4]	7 473		
40-44	37.0	[35.2-38.8]	63.0	[61.2-64.8]	5 485		
45-49	35.7	[33.7-37.8]	64.3	[62.2-66.3]	3 902		
Level of education						31.1	0.000
No education	57.8	[56.0-59.7]	42.2	[40.3-44.0]	5 670		
Primary	59.7	[58.8-60.6]	40.3	[39.4-41.2]	21 818		
Secondary or higher	62.3	[61.3-63.2]	37.7	[36.8-38.7]	20 181		
Employment status						6.9	0.009
Unemployed	61.6	[60.6-62.6]	38.4	[37.4-39.4]	17 697		
Employed	59.9	[59.1-60.7]	40.1	[39.3-40.9]	29 972		
Age at first birth (years)						1291.8	0.000
Never given birth	93.7	[92.4-94.8]	6.3	[5.2-7.6]	2 687		

<15	54.6	[51.9-57.3]	45.4	[42.7-48.1]	2 107		
15-19	58.5	[57.7-59.3]	41.5	[40.7-42.3]	25 737		
20-29	59.0	[57.9-60.0]	41.0	[40.0-42.1]	16 420		
30+	64.9	[60.4-69.2]	35.1	[30.8-39.6]	717		
Age at first marriage (years)						55.8	0.000
<15	56.2	[54.4-58.1]	43.8	[41.9-45.6]	4 345		
15-19	61.2	[60.3-62.1]	38.8	[37.9-39.7]	25 650		
20-29	61.4	[60.4-62.5]	38.6	[37.5-39.6]	15 627		
30-39	55.0	[52.2-57.8]	45.0	[42.2-47.8]	1 831		
40-49	56.3	[48.1-64.3]	43.7	[35.7-51.9]	216		
Ideal number of children						709.7	0.000
0	49.4	[46.2-52.5]	50.6	[47.5-53.8]	1 407		
1	36.4	[32.2-40.7]	63.6	[59.3-67.8]	964		
2	51.4	[49.8-52.9]	48.6	[47.1-50.2]	6 484		
3	64.5	[63.0-65.8]	35.5	[34.2-37.0]	7 571		
4	63.9	[63.0-64.9]	36.1	[35.1-37.0]	15 444		
5	62.9	[61.3-64.5]	37.1	[35.5-38.7]	5 634		
6+	60.9	[59.5-62.3]	39.1	[37.7-40.5]	10 166		
Number of living children						7333.0	0.000
0	94.9	[93.5-96.0]	5.1	[4.0-6.5]	1 998		
1	88.0	[87.1-88.9]	12.0	[11.1-12.9]	8 740		
2	69.9	[68.6-71.2]	30.1	[28.8-31.4]	10 542		
3	56.4	[55.0-57.8]	43.6	[42.2-45.0]	8 812		
4	45.1	[43.5-46.8]	54.9	[53.2-56.5]	6 720		
5	39.5	[37.6-41.4]	60.5	[58.6-62.4]	4 610		
6+	33.5	[31.8-35.1]	66.5	[64.9-68.2]	6 246		
Contraceptive use						167.9	0.000
Not using	62.6	[61.7-63.5]	37.4	[36.5-38.3]	23 539		
Non-modern	51.4	[46.1-56.6]	48.6	[43.4-53.9]	548		
Modern	58.7	[57.8-59.6]	41.3	[40.4-42.2]	23 582		
Household wealth						74.8	0.000
Poor	63.0	[62.0-63.9]	37.0	[36.1-38.0]	18 304		
Average	59.7	[58.4-61.0]	40.3	[39.0-41.6]	9 291		
Rich	58.7	[57.7-59.7]	41.3	[40.3-42.3]	20 074		
Place of residence						7.6	0.006
Urban	59.1	[58.0-60.2]	40.9	[39.8-42.0]	18 170		
Rural	61.5	[60.7-62.2]	38.5	[37.8-39.3]	29 499		
Country						1135.0	0.000
Angola	68.9	[67.1-70.6]	31.1	[29.4-32.9]	7 957		
Lesotho	44.0	[42.1-45.9]	56.0	[54.1-57.9]	3 612		
Malawi	61.8	[60.8-62.8]	38.2	[37.2-39.2]	16 130		
Namibia	54.7	[52.5-56.8]	45.3	[43.2-47.5]	3 121		
South Africa	50.3	[47.9-52.8]	49.7	[47.2-52.1]	3 050		
Zambia	64.1	[62.7-65.4]	35.9	[34.6-37.3]	7 648		
Zimbabwe	60.0	[58.2-61.7]	40.0	[38.3-41.8]	6 151		
Total	**60.6**	**[59.9-61.2]**	**39.4**	**[38.8-40.1]**	**47 669**		

Note: CI = Confidence interval; χ^2 = chi-square

Table 4: Binary logistic regression for the determinants of women's desire to limit childbearing

Characteristics	Adjusted odds ratio	SE	t	95% CI
Age group (years)				
15-19®	1			
20-24	0.85	0.08	-1.76	[0.71-1.02]
25-29	1.06	0.11	0.56	[0.87-1.29]
30-34	1.64***	0.17	4.71	[1.33-2.01]

35-39	2.44***	0.28	7.71	[1.95-3.06]
40-44	3.62***	0.43	10.78	[2.87-4.58]
45-49	4.00***	0.49	11.26	[3.15-5.10]
Level of education				
No education®	1			
Primary	1.24***	0.06	4.49	[1.13-1.35]
Secondary or higher	1.41***	0.08	6.31	[1.27-1.56]
Employment status				
Unemployed®	1			
Employed	0.85***	0.03	-5.42	[0.80-0.90]
Age at first birth (years)				
Never given birth	0.67**	0.10	-2.76	[0.50-0.89]
<15	1.05	0.07	0.63	[0.91-1.20]
15-19®	1			
20-29	0.94	0.04	-1.67	[0.87-1.01]
30+	0.80	0.10	-1.87	[0.63-1.01]
Age at first marriage (years)				
<15®	1			
15-19	0.95	0.05	-1.02	[0.85-1.05]
20-29	0.81***	0.05	-3.36	[0.72-0.92]
30-39	0.72***	0.07	-3.42	[0.60-0.87]
40-49	0.59*	0.13	-2.50	[0.38-0.89]
Ideal number of children				
0®	1			
1	9.43***	1.66	12.76	[6.68-13.32]
2	3.97***	0.46	11.85	[3.16-4.99]
3	1.62***	0.18	4.42	[1.31-2.01]
4	0.81	0.09	-1.96	[0.66-1.00]
5	0.55***	0.06	-5.48	[0.45-0.68]
6+	0.33***	0.04	-10.30	[0.27-0.41]
Number of living children				
0	0.05***	0.01	-15.92	[0.03-0.07]
1	0.12***	0.01	-31.59	[0.11-0.14]
2	0.46***	0.02	-17.13	[0.43-0.51]
3®	1			
4	1.82***	0.08	13.03	[1.66-1.99]
5	2.40***	0.13	15.62	[2.15-2.68]
6+	3.02***	0.18	18.27	[2.68-3.40]
Contraceptive use				
Not using®	1			
Non-modern	1.14	0.13	1.07	[0.90-1.43]
Modern	0.89***	0.03	-3.44	[0.83-0.95]
Household wealth				
Poor®	1			
Average	1.00	0.04	0.10	[0.93-1.08]
Rich	0.93	0.04	-1.71	[0.86-1.01]
Place of residence				
Urban®	1			
Rural	0.85***	0.03	-4.07	[0.78-0.92]
Intercept	*0.62***	*0.10*	*-2.99*	*[0.45-0.85]*

Note: *** p<.001; ** p<.01; * p<.05; SE = standard error; ; CI = confidence interval; ® = reference category

Table 5: Binary logistic regression analysis for in-union women's desire to limit childbearing by country

Characteristics	Crude odds ratio	SE	t	95% CI
Country				
Angola®	1			
Lesotho	2.82***	0.16	17.90	[2.52-3.16]
Malawi	1.37***	0.06	6.66	[1.25-1.50]
Namibia	1.84***	0.11	10.14	[1.63-2.07]
South Africa	2.19***	0.14	12.04	[1.92-2.48]
Zambia	1.24***	0.06	4.30	[1.13-1.37]
Zimbabwe	1.48***	0.08	6.99	[1.33-1.65]
Intercept	*0.45****	*0.02*	*-19.24*	*[0.42-0.49]*

Moreover, women who were employed had a higher desire (40.1%) to limit childbearing. The desire to limit childbearing was higher (45.4 %) among women who had their first birth at less than 15 years. Moreover, the desire to limit childbearing was higher (45.0%) among women whose age at first marriage was 30–39 years. The desire to limit childbearing was higher (63.6%) among women who reported that they ideally wanted one child. The desire to limit childbearing increased with the number of living children.

Women with a larger number of living children had a higher desire to limit childbearing. In terms of contraceptive use, the desire to limit childbearing was higher (48.6%) among women who were not using any methods of contraception. The desire to limit childbearing was higher for women (41.3%) who reported they were from rich households. The desire to limit childbearing was higher (40.9%) among women from urban areas. Furthermore, the desire to limit childbearing was higher among women from Lesotho (56.0%) and was lower among women (31.1%) from Angola.

Determinants of women's desire to limit childbearing

Table 4 presents the binary logistic regression analysis for the determinants of women's desire to limit childbearing. The findings showed that the odds of women's desire to limit childbearing increased with age. Women aged 45–49 years were 4.00 [95% CI: 3.15–5.10] times more likely to have a desire to limit childbearing compared to those aged 15–19 years. Similarly, the odds of women's desire to limit childbearing increased with the level of education. Women who had secondary or higher education were 1.41 [95% CI: 1.27–1.56] times more likely to have a desire to limit childbearing compared to those with no education. Moreover, women who had primary education were 1.24 [95% CI: 1.13–1.35] times more likely to have a desire to limit childbearing compared to those with no education. In terms of employment status, women who were employed were 0.85 [95% CI: 0.80–0.90] times less likely to have a desire to limit childbearing compared to those who were unemployed. In terms of age at first birth, women who had never given birth were 0.67 [95% CI: 0.50–0.89] times less likely to have a desire to limit childbearing compared to those whose age at first birth was 15–19 years.

Concerning women's ideal number of children, women who wished to have one child were 9.43 [95% CI: 6.68–13.32] times more likely to have a desire to limit childbearing compared to those who wished to not have any children. Women who wished to have six or more children were 0.33 [95% CI: 0.27–0.41] times less likely to have a desire to limit childbearing compared to those who wished to not have any children.

Furthermore, the odds of women's desire to limit childbearing increased with
the number of living children. Women who had six or more living children were 3.02 [95% CI: 2.68–3.40] times more likely to have a desire to limit childbearing compared to those who had three living children. Women who had no living children were 0.05 [95% CI: 0.03–0.07] times less likely to have a desire to limit childbearing compared to those who had three living children. Concerning current contraceptive use, women who were currently using modern methods of contraception were 0.89 [95% CI: 0.83–0.95] times less likely to desire to limit childbearing compared to those who were not using any contraceptive methods. Women who resided in rural areas were 0.85 [95% CI: 0.78–0.92] times less likely to desire to limit childbearing compared to those who resided in urban areas.

Table 5 presents the crude odds ratio for the desire to limit childbearing by country. Women from

Lesotho [AOR: 2.82, 95% CI: 2.52–3.16] and South Africa [AOR: 2.19, 95% CI: 1.92–2.48], were more likely to have a desire to limit childbearing compared to women from Angola. Moreover, women from Namibia [AOR: 1.84, 95% CI: 1.63–2.07], Malawi [AOR: 1.37, 95% CI: 1.25–1.50], Zimbabwe [AOR: 1.48, 95% CI: 1.33–1.65], and Zambia [AOR: 1.24, 95% CI: 1.13–1.37], were more likely to have a desire to limit childbearing compared to women from Angola.

Discussion

This study examined the socio-demographic determinants of women's desire to limit childbearing among in-union women across seven Southern African countries using pooled DHS data. Nearly two in five women reported a desire to limit childbearing, highlighting a demand for fertility regulation and a need for responsive reproductive health services across the region.

Key factors associated with women's desire to limit childbearing were age, level of education, employment status, age at first birth, age at first marriage, ideal number of children, number of living children, contraceptive use, household wealth, and place of residence. Several studies have found similar results.[36-41] The analysis revealed that age was a strong predictor, where the odds of women's desire to limit childbearing were higher among older women. This could be due to the reasons that when individuals mature, they may reassess their life goals, priorities
and economic circumstances.[42,43] Older individuals may have completed their desired family size or may be nearing the end of their reproductive cycle.[44] Moreover, older women may have accumulated more life experience, education and resources, which tend to lead to greater awareness of the challenges and opportunities associated with raising children, thus influencing their desire to limit childbearing.[44,45]

The role of education was more nuanced. While the bivariate results indicated that women with no education had a higher prevalence of having a desire to limit childbearing, the multivariate results revealed a positive relationship between higher education levels and the desire to limit childbearing. This discrepancy likely reflects confounding, as women with lower levels of education also tended to be older and have more living children — both factors independently associated with a desire to limit childbearing. After adjusting for these factors, the analysis revealed that women's desire to limit childbearing increased with education, suggesting that education empowers women to make informed reproductive choices. This finding aligns with a study conducted in Pakistan, which found that women with no education were less likely to have a desire to limit childbearing compared to those who were educated.[46] Women with no education often have a lower socio-economic status, which may contribute to a stronger desire to limit childbearing due to the financial burden of raising a large family. However, this result contrasts some previous studies that reported a lower desire to limit childbearing among women with higher levels of education[47-49] — suggesting that the relationship between education and fertility preferences may be context-specific and influenced by broader socio-economic and cultural factors.

Similarly, the study found that employed women had lower odds of having a desire to limit childbearing. This contrasts with findings from previous studies which found no significant association between employment and fertility preferences.[48,50]

One possible explanation is that employed women may feel more financially secure and thus more open to having additional children. However, this finding is unexpected, because, in some contexts, employment empowers women to make informed decisions about their reproductive choices and often desire to have smaller families. Moreover, in some contexts, employment — especially in the informal sector — may not translate into greater reproductive autonomy. Age at first marriage was also a significant predictor, where women whose age at first marriage was 40-49 years had higher odds of having a desire to limit childbearing, possibly due to a shorter reproductive window and cultural expectations to bear children soon after marriage.[51,52] Similar findings have been reported in Bangladesh.[53] Older age at first marriage might also be linked to financial stability which could encourage the decision to have more children. The ideal number of children was another strong predictor, where women whose ideal number of children was between one and two children had higher odds of having a desire to limit childbearing. This variable is often

overlooked in similar studies, but it reflects evolving cultural norms and increased access to family planning. One similar study found that women's desire to limit childbearing decreased with their ideal family size.[46] It is possible that women whose ideal number of children is low take the necessary steps to ensure that they limit childbearing. Similarly, this study revealed that the number of living children was positively associated with the desire to limit childbearing. Women with six or more living children had higher odds of having a desire to limit childbearing, consistent with findings from Ethiopia and Bangladesh.[49,53] Having many children has financial implications. The financial challenges of having a large family size may contribute to women who already have a larger number of living children having higher odds of wanting to limit their childbearing.

Interestingly, the study found that the desire to limit childbearing was lower among women who were using modern methods of contraception compared to those who were not using any contraceptive method. A study in Pakistan found that women who were not using contraception were less likely to desire to limit childbearing than those who were using contraception.[46] This surprising insight might stem from the reality that many women turn to contraception not just to completely avoid having children, but rather to space out or postpone future pregnancies. In these situations, using contraception can be seen as a way to manage the timing of births instead of aiming for a specific family size. Women who use contraception are more likely to have autonomy about their reproductive outcomes which enables them to limit their childbearing. Moreover, some women may be using contraception to delay future births and keep their reproductive options open for future pregnancies. This finding highlights the importance of understanding, not just contraceptive use, but the factors motivating its use.

Geographical factors also emerged as significant predictors of women's desire to limit childbearing. Women from rural areas had lower odds of having a desire to limit childbearing. This is possibly due to cultural norms favouring larger families, limited access to reproductive health services, and lower educational attainment in rural areas.[54] However, previous studies have shown mixed results regarding the influence of residence.[48,53] The analysis further revealed notable country-level variations. Women in Lesotho, Malawi, Namibia, South Africa, Zambia, and Zimbabwe had higher odds of having a desire to limit childbearing than those in Angola. These differences possibly reflect disparities in reproductive health policy implementation, contraceptive availability, and overall health system capacity across these countries.[55,56] For instance, countries such as Lesotho and South Africa have made significant progress in expanding access to contraception and promoting reproductive autonomy through targeted public health initiatives.[57,58] In contrast, Angola may face structural challenges, including limited healthcare infrastructure, lower contraceptive prevalence, and cultural preferences for larger families, which may contribute to a lower desire to limit childbearing.[59,60] These country differences underline the importance of context-specific strategies.

Implications for research and practice

The study findings have some practical implications for both research and practice. The significant relationship between women's desire to limit childbearing and socio-demographic factors such as age, education, employment status, age at first marriage, number of living children, contraceptive use, place of residence, and country suggest the need for more tailored and context-specific interventions that address reproductive health needs of women across different countries.

For instance, programmes targeting women with lower levels of education should integrate reproductive health information into adult education, community-based workshops, and media campaigns to increase knowledge and empower women to make informed choices. Likewise, targeted interventions, such as access to long-acting reversible contraceptives, should be provided to women with larger family sizes. Since rural women had lower odds of having a desire to limit childbearing, there is a need for culturally sensitive interventions, such as engaging traditional leaders and male partners, that could assist in addressing prevailing norms that favour large families. Moreover, governments should also invest in strengthening health systems and ensuring that the distribution of reproductive health resources is equitable, especially in underserved areas.

Furthermore, future studies should investigate the underlying reasons behind the observed associations, especially the nuanced relationship between education and the desire to limit childbearing.

Strengths and limitations of the study

The strength of the study is that nationally representative datasets were used for a weighted statistical analysis to provide results representative of women of reproductive age in the selected countries. However, it is important to acknowledge the limitations of the use of cross-sectional data; it is not possible to measure a causal relationship between the explanatory factors and women's desire to limit childbearing. Moreover, the use of secondary data may also give rise to potential recollection bias and social desirability bias. Despite these limitations, the study offers valuable insights into the socio-demographic and behavioural factors influencing women's reproductive intentions in Southern Africa

Conclusions

This study provides valuable insights into the determinants of women's desire to limit childbearing in seven Southern African countries. The study showed that nearly forty percent of in-union women have a desire to limit childbearing, underlining the ongoing need for accessible, equitable, and responsive reproductive health interventions across the region. The factors associated with women's desire to limit childbearing were age, educational level, employment status, age at first marriage, number of living children, contraceptive use, place of residence, and country. Older women and women with larger family sizes had significantly higher odds of having a desire to limit childbearing, underlining the importance of long-acting family planning methods. Although education was associated with an increased desire to limit childbearing, the findings suggest a need for further research to explore the complex interaction between education and other potential confounding variables. The lower odds of having a desire to limit childbearing among women in rural areas and those from Angola suggests a possible effect of structural and cultural barriers which continue to influence reproductive preferences. To improve reproductive health outcomes in the region, interventions need to be context-specific, culturally appropriate, and equity-oriented, especially for women with lower education, those with higher parity, and those living in rural areas. There is also a need for further longitudinal research to understand the determinants of contraceptive use and fertility preferences over time.

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Data availability

The data used in this study is publicly available and can be obtained from the DHS Program website, https://dhsprogram.com/data/available-datasets.cfm, upon registration.

Authors' contributions

ZP and M conceptualised this study. ZP and M contributed to the intellectual inputs of this study. ZP worked on the data analysis, literature review, and interpretations of findings. All authors have read and approved the final manuscript

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Ethics declarations

Permission to download the dataset used in this study was granted by the DHS Program (http://www.dhsprogram.com). The DHS ensures that ethical procedures are followed when collecting the data. More information about the ethical procedures of the DHS Program is available from theirwebsite,https://dhsprogram.com/Methodology/Protecting-the-Privacy-of-DHS-Survey-Respondents.cfm.

Competing interests

The authors declare no competing interests.

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