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Gender differences in positive sexual behaviour among a young adult cohort in South Africa: A cross-sectional study

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Monica E. Akokuwebe and Erhabor S. Idemudia*

Faculty of Humanities, North West University, Mafikeng 2735, South Africa

***For Correspondence:** Email: *me.akokuwebenwupostdoctoral2021@gmail.com*; Phone: +2780433819

Abstract

Risky sexual behaviour among young adults continues to rise in South Africa, but aggregated data on positive sexual behaviours by sex are often ignored. Using the 2016 South Africa Demographic and Health Survey dataset, this study examined the gender differences in positive sexual behaviour among young adult cohorts in South Africa. One thousand, seven hundred and twenty-four male and female adult cohorts (aged 15-34) who had engaged in positive sexual behaviours (condom use at last sex and single sexual partnership) were included in this study. Frequencies, cross-tabulations and logistic regression models were described and were fitted to the data between sociodemographic factors and the outcome variable at $\rho<0.05$. Respondents' mean age was 16.3±2.4 years (female–15.6±2.2 years and male–15.2±2.3 years). The determining factors associated with positive sexual behaviours varied by gender were age 15–34 years, education, working status and HIV knowledge. The logistic regression results showed that age 25–29 (AOR = 2.21) and 30–34 (AOR = 3.34), exposure to media (AOR = 1.28, HIV knowledge (AOR = 1.18), and provinces (Northern Cape–AOR = 1.12 and Limpopo–AOR = 1.34) were found to be predictors of positive sexual behaviours among male respondents. While education (primary: AOR = 1.02; secondary: AOR = 1.57), rich wealth status (AOR = 2.68), Coloured population group (AOR = 2.49), delayed sexual debut (AOR = 4.42), and those from KwaZulu-Natal province (AOR = 4.56) were found to have higher odds of predicting positive sexual behaviour among female respondents. There were significant gender differences in the predictors of positive sexual behaviours. There is an urgent need to develop sexual and reproductive strategies that promote the adoption of positive sexual behaviour prevention among young adults in South Africa. *(Afr J Reprod Health 2023; 27 [7]: 43-55).*

Keywords: Determinants, gender, positive sexual behaviour, South Africa, young adult

Résumé

Les comportements sexuels à risque chez les jeunes adultes continuent d'augmenter en Afrique du Sud, mais les données agrégées sur les comportements sexuels positifs par sexe sont souvent ignorées. À l'aide de l'ensemble de données de l'Enquête démographique et de santé en Afrique du Sud de 2016, cette étude a examiné les différences entre les sexes en matière de comportement sexuel positif parmi les cohortes de jeunes adultes en Afrique du Sud. Mille sept cent vingt-quatre cohortes d'hommes et de femmes adultes (âgés de 15 à 34 ans) qui avaient eu des comportements sexuels positifs (utilisation du condom lors du dernier rapport sexuel et partenariat unisexuel) ont été incluses dans cette étude. les fréquences, les tableaux croisés et les modèles de régression logistique ont été décrits et ajustés aux données entre les facteurs sociodémographiques et la variable de résultat à $\rho<0,05$. l'âge moyen des répondants était de 16,3 ± 2,4 ans (femmes–15,6±2,2 ans et hommes–15,2±2,3 ans). les facteurs déterminants associés aux comportements sexuels positifs variaient selon le sexe étaient les 15-34 ans, le niveau de scolarité, le statut professionnel et la connaissance du vih. Les résultats de la régression logistique ont montré que l'âge de 25 à 201229 (RCA = 2,21) et de 30 à 30 ans (RCA = 3,34), l'exposition aux milieux (RC = 1,28, connaissance du VIH (RCA = 1,18) et les provinces (Cap-Nord – RCA = 1,12 et Limpopo – RCA = 1,34) étaient des prédicteurs de comportements sexuels positifs chez les répondants masculins. Alors que l'éducation (primaire: RCA = 1,02; secondaire: RCA = 1,57), le statut de richesse riche (RCA = 2,68), le groupe de population de couleur (RCA = 2,49), les débuts sexuels retardés (RCA = 4,42) et ceux de la province du KwaZulu-Natal (RCA = 4,56) présentaient des chances plus élevées de prédire un comportement sexuel positif chez les répondantes. Il y avait des différences significatives entre les sexes dans les prédicteurs des comportements sexuels positifs. Il est urgent d'élaborer des stratégies sexuelles et reproductives qui favorisent l'adoption de comportements sexuels positifs chez les jeunes adultes en Afrique du Sud. *(Afr J Reprod Health 2023; 27 [7]: 43-55).*

Mots-clés: Déterminants, genre, comportement sexuel positif, Afrique du Sud, jeune adulte

Introduction

Young people are faced with different challenges including general health and reproductive health issues. This is more prevalent in developing countries where this vulnerable group of people constitute a higher proportion of the population[1]. Studies in population and health demography have reported that risky sexual behaviours are a common practice among this age group in sub-Saharan African (SSA) countries[1].Young people are frequently involved in premarital sexual intercourse, with negative outcomes such as unwanted pregnancy, sexually transmitted infections (STIs), and human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS)[1,2]. Also, young people have the tendency to have multiple sexual partners, concurrent sexual partners, and unprotected sexual intercourse. Thus, individuals who indulge in these sexual behaviours are often considered as being at risk of contracting STIs and HIV infection[2]. Young people, on the other hand, go through a variety of significant changes, including physical, economic, mental growth, and psychological and social aspects of behaviour. Therefore, youth and the early adult period is an ideal time to implement sexual and reproductive health promotion programmes. The age group 15-34 years is characterized by risk-taking behaviours, including risky sexual behaviours[3-6]. The early stage of growth or process of development in young adults is associated with increased antisocial behaviours and lack the ability to anticipate the consequences of such risk-taking behaviours.

South Africa has the highest burden of HIV/AIDS worldwide, and young people aged 15-34 years are at higher risk of contracting the disease as compared to the other age segments of the population[7-15]. Many of the negative health outcomes among young people in South Africa have been linked to risky sexual habits. These include having multiple sexual partners, engaging in unprotected sex, alcohol consumption, substance abuse, and intimate partner violence[7,10]. Therefore, safe sexual practices become an imperative indicator of strategic policies and interventions established to address the health needs of young adults[12]. Generally, studies have showed a gender gap in sexual behaviour, where males were more likely to engage in risky sexual behaviour. Significant gender differences in sexual practices have shown that males were more likely to engage in sexual activity than females[11]. Previous research confirms the existence of gender-based differences regarding the high-risk sexual behaviour (non-use of condoms, and casual partners) of young adult men and women[16]. These differences have remained despite the fact that data on sexual risky behaviours of young adults have revealed that males and females express their sexuality differently and behave differently when engaging in high-risk sexual behaviours[16-17].

Despite several intervention programmes in South Africa, risky sexual behaviours continue to pose risks to the health of young adults. In recent decades, there has been a substantial increase in the prevalence of the highest risky sexual behaviours that have been observed among young adult males and females across all provinces of South Africa[12]. However, in the context of the high HIV incidence in South Africa, there are important issues that need to be addressed, using the provincial analysis to explore the positive sexual behaviour of young adults in South Africa provinces[13]. This study becomes important as it contributes to the understanding of the intersection between gender and positive sexual behaviours in South Africa, and by implications in sub-Saharan Africa. Additionally, similar studies conducted in South Africa and other sub-Saharan African countries, such as Ghana[18] and Malawi[19], have failed to include further research on the factors that influence gender-differences of risky sexual behaviours.

Sociologically, youth or young adult denotes an interface between childhood and adulthood. Many organizations consider the ages between 0 and 14 as the childhood category, although UNICEF stretches its childhood category up to the age of 18[30]. However, the definition of youth vary considerably amongst countries, and the United Nations defines the youth as those aged between 15 and 24 years. The United Nations, however, recognizes that each region may have its own specific definition of youth or young adult[31]. In 1996, the South Africa's National Youth Policy, as well as its National Youth Commission Act (1996), define the youth as anyone between the ages of 15 and 35 years[31] and this has been domesticated in the South Africa's National Youth Commission Act, 1996. However, the South Africa youth policy is guided by the National Youth Policy (2009-2014),

which was developed based on a series of legislative frameworks from 1994 onwards.[4] These legislative and policy frameworks incorporate the 1996 National Youth Commission Act, 1997 White Paper for Social Welfare, the 2000–2007 National Youth Development Policy Framework, and the 2008–2013 Draft National Youth Policy[4]. According to the National Youth Commission on the South Africa's National Youth Policy Framework in 1996 adopted the age range of youths (15–35 years) owing to the fact that the varied categories of youths aged 15–35 years have been plagued with different socio-political and historical experiences during apartheid[32]. Therefore, the community development policy in South Africa highlights the need for active involvement of youths (15-35 years) in national development, with its significance for their participation in national, provincial and local development programmes[6,17]. For the purpose of this study, youth are defined as males and females who are within the age cohorts of 15–34 years, in line with the 1996 South African National Youth Policy[4,32] and the terms 'youth' and 'young adult' are used interchangeably in this study[23,26].

Thus, research on positive sexual behaviours among young adults in South Africa, using the nationally representative data of the 2016 South Africa Demographic Health Survey (SADHS), is sparse. This current study, focused on the steadily increasing prevalence of STIs and HIV/AIDS among young adults, underlies the need to investigate thoroughly the aspects involved in adoption of positive sexual practices, based on gender across provinces of South Africa. Positive sexual behaviour such as condom use at last sexual activity and single sexual partner were employed as the outcome of interest in this study, as these variables of protective sexual behaviour is less understood using the 2016 SADHS. Thus positive sexual behaviours is conceptualized in this study as any behaviours targeted at preventing a negative health outcome (e.g. encouraging the use of condoms and contraception) or discourage one or more behaviours that might lead to negative health outcomes (such as having sex with many partners)[28]. Though, Mokgatle *et al.*[13], reported that contraception usage, and a shift in predisposition regarding unsafe sex, are instances of positive sexual behaviours. Also, protective factors either discourage one from being involved in behaviours leading to negative health outcomes (e.g. having sex with multiple partners) or motivating one to participate in behaviours that may hinder a negative health consequences (e.g. not having casual sex, or using condoms at every sexual activity). Accordingly, the first objective of this study was to examine the prevalence of positive sexual behaviours among young adults. The second objective was to identify a possible association between gender and positive sexual behaviours as well as the determinants of positive sexual behaviours among male and female young adults aged 15–34 years in South Africa. Hence, this study will be useful for developing policies and programmes for improving sexual and reproductive health among young adults in South Africa.

Methods

Study setting

The study setting is the Republic of South Africa, bounded by Namibia, Botswana and Zimbabwe. The country has multi-ethnic covering a wide diversity of languages, religions and cultures, and racial groups. The country had a youth population of 20.6 million, making up 35.7% of the country's total population of about 60.6 million people, with divided administrative nine provinces: Western Cape, Eastern Cape, Northern Cape, Gauteng, Mpumalanga, Free State, KwaZulu-Natal and Limpopo[24]. The country has upper-middle power in the Commonwealth of Nations and the G-20, ranking 114th on the Human Development Index, yet inequality, poverty and crime still persist, with about a quarter of the population unemployed and living on less than US $ 1.23 a day[24].

Data source and study design

This study is a cross-sectional analysis of a dataset from the 2016 South Africa Demographic and Health Survey[24]. The South Africa Demographic Health Survey (SADHS) is a nationally representative, cross-sectional survey that takes place every five years. The Demographic and Health Survey (DHS) employs a stratified random sample method, with clusters serving as the main sampling unit[24]. The DHS samples households randomly within each cluster. This study used data from the most recent DHS conducted in South Africa in 2016, selected based on data availability and provincial areas where the prevalence of

HIV/AIDS is high. The data from only those young adult males and females, aged between 15 and 34 years who were interviewed were extracted from the household data, and weighting was done to mitigate the effects of any sample imbalances. Table 1 shows the summary of the total sample size of young adults aged 15 to 34 by province and gender.

Variables

Outcome variable

The outcome variable, 'positive sexual behaviour' comprises combining the variables 'condom use at last sexual activity' and 'single sexual partner'. First, the variable 'condom use at last sexual activity' was formed from the question: Did you use a condom during last sex with most recent partner? This was coded '1' if a respondent reported use of a condom at last sexual intercourse and '0' as non-use of a condom at last sexual intercourse. Second, the variable 'single sexual partnership' was formed from the question: in the past year, how many people, excluding spouse, have you had sexual intercourse with? The two variables, 'condom use at last sexual activity' and 'single sexual partner' were merged into a single variable: 'positive sexual behaviour'[24]. This was coded '1' if a respondent reported having no multiple sexual partners in the 12 months prior to the survey and '0' otherwise.

Independent variables

The independent variables were sociodemographic factors, which were chosen primarily based on the study objectives and which existing literature[4,5,7], has shown how these factors may influence sexual behaviour among young people. Table 1 below shows the categories of age, place of residence, gender, educational attainment, wealth status (measured by household socioeconomic status captured through a wealth index based on household possessions and amenities), work status, population group, media exposure, HIV knowledge, delayed sexual debut (first sex after the age 15), intimate partner violence (IPV) and province[13,25,26]. The IPV comprises combining domestic violence variables such as 'ever experienced any emotional violence', 'physical violence' or 'any sexual violence'. IPV was coded '1' if a respondent reported yes having experienced one or more forms of domestic violence mentioned above.

Statistical analysis

The data was analyzed at three levels, with separate analyses for females and males. Descriptive analysis was used to show the respondents' background characteristics and frequency distribution of the outcome variable in the bar charts. In the bivariate analysis, Chi-square (χ^2) test was used to test for an association between respondents' socio-demographic factors and the outcome variable by gender. For multivariate analysis, a binary logistic regression model was used to predict a relationship between the outcome variable and the socio-demographic factors by gender, while controlling for other variables. The findings were presented as Odds Ratios (ORs) with 95% confidence interval (CIs) in the adjusted regression models. The odds ratios provide estimates for the relative hazards of various categories of each covariate relative to the reference category (RC). Multicollinearity was checked using 'vif' command and the mean vif was 1.52. Data management and analysis was performed using Stata (version 17.1). Sampling weights were employed at the various levels of analyses using the survey (*svy*) Stata command to account for under-sampling and over-sampling[24].

Ethical consideration

Ethical review and approval for procedures and questionnaires for standard DHS surveys are provided by the ICF Institutional Review Board (IRB). Country-specific DHS survey protocols are reviewed by the ICF IRB and typically by an IRB in the host country. All human subjects gave their informed consent for inclusion before they participated in the study. Procedures and questionnaires for standard DHS surveys have been reviewed and approved by the ICF International Institutional Review Board (IRB). We obtained approval to use the 2016 SADHS data from the DHS repository (https://dhsprogram.com/data/available-datasets.cfm). The study was conducted in accordance with the Declaration of Helsinki, as well as with the relevant ethical guidelines and regulations. The protocol was approved by the Ethics Committee of the host country of the DHS Programme/ICF (Project identification code: 2016 SADHS)[24].

Table 1: Detailed explanation of sociodemographic variables categorization

S/N	Factors	Variable categorization
1	Age (in years)	1 = 15−19 2 = 20−24 3 = 25−29 4 = 30−34
2	Place of residence	1 = Urban 2 = Non-urban
3	Educational attainment	1 = No education 2 = Primary 3 = Secondary/higher
4	Wealth status	1 = Poor 2 = Middle 3 = Rich
5	Work status	1 = Not working 2 = Working
6	Population group	1 = African Black 2 = White, Coloured 3 = Indian/Asian
7	Media information access	1 = Low 2 = High
8	HIV knowledge	1 = Low 2 = High
9	Delayed sexual debut	1 = No 2 = Yes
10	Intimate partner violence (IPV)	1 = No 2 = Yes
11	Province	1 = Western Cape 2 = Eastern Cape 3 = Northern Cape 4 = Free State 5 = KwaZulu-Natal 6 = North West 7 = Gauteng 8 = Mpumalanga 9 = Limpopo

Source: 2016 SADHS

Results

Proportion of positive sexual behaviours by gender

Figure 1 depicts that female respondents (91.7%) reported practicing positive sexual behaviour during their last sexual activity, compared to their male counterparts (70.4%) (Figure 1).

Bivariate results showing respondents' involvement in positive sexual behaviours by sociodemographic factors

Table 2 shows the distribution of respondents by gender and selected sociodemographic factors as well as the bivariate results showing the respondents' involvement in engaging in positive sexual behaviours by sociodemographic factors. Respondents with work status ($\rho<0.00$), population group ($\rho<0.03$), with HIV knowledge ($\rho<0.00$), and delayed sexual debut ($\rho<0.00$), were more likely to report engaging in practice of positive sexual behaviours. In addition, a majority of the respondents (90.3%) practicing positive sexual behaviours were found in KwaZulu-Natal province while lower practices of positive sexual behaviours were found among respondents residing in Gauteng province (64.2%; $\rho<0.00$) (Table 2).

Distribution of engaging in risky sexual behaviours by provinces

The adjusted associations between province and risky sexual behaviours (non-condom use at last sex and multiple sexual partners) using bivariate analysis are presented in Table 3. Provinces such as Gauteng (AOR = 3.87, CI = 2.11 – 7.12, $\rho<0.05$) and Mpumalanga (AOR = 3.50, CI = 1.95 – 6.28, $\rho<0.05$) were significantly found to have higher odds of risky sexual behaviours than their counterparts from Western Cape province (Table 3).

Multivariate logistics regression analysis of predictors of respondents' involvement in positive sexual behaviours by sociodemographic factors

The adjusted associations between selected variables and positive sexual behaviour using multivariate logistic regression analysis are presented in Table 4. Age was statistically significant for positive sexual behaviour among male and females in South Africa. Older males (aged 30−34) and females (aged 25−29 and 30−34) were found to have higher odds of engaging in positive sexual behaviour compared with their counterparts aged 15−19. On the other hand, males in the non-urban areas (OR = 0.81, CI = 0.45−1.46) had lower likelihoods of engaging in positive sexual behaviour than females. Having primary or secondary higher education increased the odds of males and female engaging in positive sexual behaviour compared with their counterparts with no education. Similar results were seen for male and female youths who were either White or Colored by population group. Also, having exposure to media

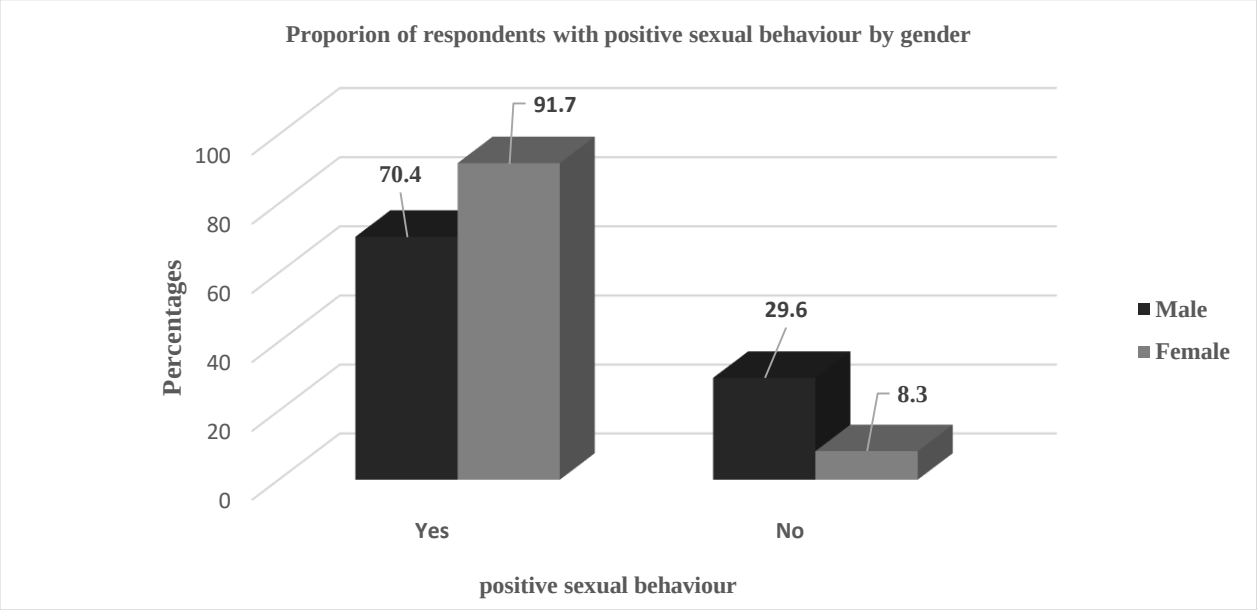

Figure 1: Positive sexual behaviour ('condom use at last sexual activity' and 'single sexual partner'), distributed by sex of respondents (N = 1724)

Table 2: Sociodemographic factors of respondents by involvement in positive sexual behaviours (Single sexual partner and condom use at last sex), (N = 1,724)

Socio-demographic factors	Total N = 1724	Male n = 781 n (%)	Female n = 943 n (%)	Positive sexual behaviours n = 1415 Yes, n (%)	n = 309 No, n (%)	ρ-value
Age (in years)						0.00***
15−19	920	397 (43.15)	523 (56.85)	911 (99.02)	09 (0.98)	
20−24	299	120 (40.13)	179 (59.87)	246 (82.27)	53 (17.73)	
25−29	233	135 (57.94)	98 (42.06)	124 (53.22)	109 (46.78)	
30−34	272	129 (47.43)	143 (52.57)	134 (49.26)	138 (50.74)	
Place of residence						0.01***
Urban	969	502 (51.81)	467 (48.19)	774 (79.88)	195 (20.12)	
Non-urban	755	279 (36.95)	476 (63.05)	641 (84.90)	114 (15.10)	
Educational attainment						0.05**
No education	14	06 (42.86)	08 (57.14)	10 (71.43)	04 (28.57)	
Primary	132	38 (28.79)	94 (71.21)	118 (89.39)	14 (10.61)	
Secondary/higher	1578	737 (46.70)	841 (53.30)	1287 (81.56)	291 (18.44)	
Wealth status						0.01***
Poor	754	291 (38.59)	463 (61.41)	608 (80.64)	146 (19.36)	
Middle	347	167 (48.13)	180 (51.87)	272 (78.39)	75 (21.61)	
Rich	623	323 (51.85)	300 (48.15)	535 (85.87)	88 (14.13)	
Marital status						0.00***
Never married	1355	526 (38.82)	829 (61.18)	1353 (99.85)	02 (0.15)	
Married/cohabiting	334	250 (74.85)	84 (25.15)	33 (9.88)	301 (90.12)	
Divorced/Separated/Widowed	35	05 (14.29)	30 (85.71)	29 (82.86)	06 (17.14)	
Work status						0.00***
Not working	1449	647 (44.65)	802 (55.35)	1239 (85.51)	210 (14.49)	
Working	275	134 (48.73)	141 (51.27)	176 (64.00)	99 (36.00)	
Population group						0.03**
African Black	1481	639 (43.15)	842 (56.85)	1201 (81.09)	280 (18.91)	
White	35	24 (68.57)	11 (31.43)	28 (80.00)	07 (20.00)	
Coloured	183	104 (56.83)	79 (43.17)	164 (89.62)	19 (10.38)	
Indian/Asian	25	14 (56.00)	11 (44.00)	22 (88.00)	03 (12.00)	
Exposure to media						0.51
Low	552	229 (41.49)	323 (58.51)	458 (82.97)	94 (17.03)	

Socio-demographic factors	Total N = 1724	Male n = 781 n (%)	Female n = 943 n (%)	Positive sexual behaviours n = 1415 Yes, n (%)	n = 309 No, n (%)	ρ-value
High	1172	552 (47.10)	620 (52.90)	957 (81.66)	215 (18.34)	
HIV knowledge						0.00***
Low	107	38 (35.51)	69 (64.49)	104 (97.20)	03 (2.80)	
High	1617	743 (45.95)	874 (54.05)	1311 (81.08)	306 (18.92)	
Delayed sexual debut						0.00***
No	1061	446 (42.04)	615 (57.96)	1042 (98.21)	19 (1.79)	
Yes	663	335 (50.53)	328 (49.47)	373 (56.26)	290 (43.74)	
Intimate partner violence (IPV)						0.49
No	1704	770 (98.6)	934 (99.0)	770 (98.6)	11 (1.4)	
Yes	20	11 (1.4)	09 (1.0)	934 (99.0)	09 (1.0)	
Province						0.00***
Western Cape	135	76 (56.30)	59 (43.70)	118 (87.41)	17 (12.59)	
Eastern Cape	165	61 (36.97)	104 (63.03)	147 (89.09)	18 (10.91)	
Northern Cape	147	69 (46.94)	78 (53.06)	126 (85.71)	21 (14.29)	
Free State	199	84 (42.21)	115 (57.79)	158 (79.40)	41 (20.60)	
KwaZulu-Natal	330	124 (37.58)	206 (62.42)	298 (90.30)	32 (9.70)	
North West	144	69 (47.92)	75 (52.08)	114 (79.17)	30 (20.83)	
Gauteng	148	86 (58.11)	62 (41.89)	95 (64.19)	53 (35.81)	
Mpumalanga	206	110 (53.40)	96 (46.60)	137 (66.50)	69 (33.50)	
Limpopo	250	102 (40.80)	148 (59.20)	222 (88.80)	28 (11.20)	

*N.B. Both male and female respondents were pooled together in the analysis for each of the components of the positive sexual behaviour and positive sexual behaviour have two categories: 'yes' and 'no' were included in Table 2; *ρ<0.05.*

Table 3: Adjusted bivariate analysis of respondents' risky sexual behaviours (multiple sexual partners and non-condom use at last sex) by provinces (N = 1,724)

	Risky sexual behaviour (non-condom use and multiple sexual partners)				
Provinces	**AOR**	**Std. Err.**	**Z**	**P> |z|**	**[95% CI]**
Western Cape (RC)	RC	RC	RC	RC	RC
Eastern Cape	0.85	0.31	−0.45	0.65	0.42 – 1.72
Northern Cape	1.16	0.41	0.42	0.68	0.58 – 2.30
Free State	1.80	0.56	1.88	0.06	0.98 – 3.33
KwaZulu-Natal	0.75	0.24	−0.92	0.36	0.40 – 1.39
North West	1.83	0.60	1.82	0.07	0.96 – 3.49
Gauteng	3.87	1.20	4.35	0.00	2.11 – 7.12 ***
Mpumalanga	3.50	1.04	4.19	0.00	1.95 – 6.28 ***
Limpopo	0.88	0.29	−0.41	0.69	0.46 – 1.66

***A**OR = Adjusted odds ratio; CI = confidence interval; Ref. = Reference category; *ρ<0.05*

Table 4: Multivariate analysis of positive sexual behaviours (single sexual partners and condom use at last sex) of young people aged 15−34 years by sociodemographic factors (N = 1,724)

	Positive Sexual Behaviour			
	Males		**Females**	
Sociodemographic factors	**AOR**	**95% CI**	**AOR**	**95% CI**
Age (in years)				
15−19	Ref.		Ref.	
20−24	0.06	(0.70 ─ 1.23)	0.21	(0.13 ─ 1.32)
25−29	2.21	(1.92 ─ 2.28)	2.02	(1.26 ─ 2.13)*
30−34	3.34	(2.20 ─ 4.26)*	3.20	(2.43 ─ 3.32)*
Place of residence				
Urban	Ref.		Ref.	
Non-urban	0.81	(0.45 ─ 1.46)*	0.41	(0.55 ─ 0.91)
Educational attainment				
No education	Ref.		Ref.	
Primary	1.65	(0.26 ─ 2.43)*	1.02	(0.08 ─ 1.07)*
Secondary/higher	3.45	(2.26 ─ 4.23)*	1.57	(0.25 ─ 2.81)*
Wealth status				

	Positive Sexual Behaviour			
	Males		**Females**	
Sociodemographic factors	**AOR**	**95% CI**	**AOR**	**95% CI**
Poor	Ref.		Ref.	
Middle	1.23	(0.41 ─ 1.42)*	1.15	(0.84 ─ 1.57)
Rich	2.20	(0.24 ─ 2.86)*	2.68	(0.51 ─ 3.84)*
Work status				
Not working	Ref.		Ref.	
Working	2.56	(0.33 ─ 3.39)*	3.32	(2.49 ─ 4.42)*
Population group				
African Black	Ref.		Ref.	
White	1.22	(0.14 ─ 1.30)*	1.07	(1.46 ─ 1.48)*
Coloured	1.14	(0.62─ 1.23)*	2.49	(2.20 ─ 3.20)*
Indian/Asian	0.12	(0.61 ─ 1.42)	1.48	(0.17 ─ 1.64)
Exposure to media				
Low	Ref.		Ref.	
High	0.02	(0.34 ─ 1.14)*	1.09	(0.84 ─ 1.43)*
HIV knowledge				
Low	Ref.		Ref.	
High	1.18	(1.66 ─ 2.14)*	2.09	(1.24 ─ 2.34)*
Delayed sexual debut				
No	Ref.		Ref.	
Yes	1.02	(1.07 ─ 2.21)*	4.42	(3.23 ─ 6.23)*
Intimate partner violence (IPV)				
No	Ref.		Ref.	
Yes	0.23	(0.19 ─ 1.38)	0.14	(0.29 ─ 1.27)
Province				
Western Cape	Ref.		Ref.	
Eastern Cape	0.34	(0.10 ─ 1.14) *	2.25	(0.24 ─ 1.28)
Northern Cape	1.12	(0.23 ─ 1.92)*	1.62	(0.84 ─ 2.92)*
Free State	0.90	(0.24 ─ 2.57)	1.80	(0.98 ─ 3.33)
KwaZulu-Natal	0.68	(0.22 ─ 2.12)*	4.56	(2.64 ─ 5.38)
North West	1.06	(0.32 ─ 1.25)*	1.38	(0.16 ─ 1.49)*
Gauteng	0.17	(0.70 ─ 2.64)	0.14	(0.23 ─ 1.21)
Mpumalanga	0.48	(0.78 ─ 2.24)	0.28	(1.45 ─ 2.89)
Limpopo	1.34	(0.28 ─ 2.33)*	1.48	(0.64 ─ 1.26)*

*AOR = Adjusted odds ratio; CI = confidence interval; RC = Reference category; *p<0.05*

decreases the likelihoods of engaging in positive sexual behaviours in males than in females, Comprehensive knowledge of HIV increased the odds of males and females having to engage in condom use at least sexual activity or having a single sexual partner. Delayed sexual debut was found to be associated with increased odds of engaging in positive sexual behaviour among males and females. Male youths residing in Eastern Cape and KwaZulu-Natal provinces had lower odds of engaging in single sexual partner and condom use than females, nevertheless, this association was found only for males resident in the aforementioned provinces in South Africa.

Discussion

The prevalence and determinants of positive sexual behaviours were assessed in this study using a nationally representative survey data. The findings showed that a significant number of young female persons have a single sexual partner, but this is not consistent with condom use in sexual activity. The finding corroborated the assumptions that positive sexual behaviours differ by gender and province. Reported levels of condom use among young people have decreased over time, but not in all provinces, and this study has confirmed this finding from previous studies[13-19]. The study found that reported condom use was higher among male than female respondents. However, this study found that those who reported engaging with a single sexual partner were higher among males than their female counterparts. This corrobates the findings of previous studies of sexual behaviour of young people in South Africa[13]. Consistent with other findings[27], condom use was higher among males than females and this has been associated with

condom negotiation being mainly controlled by males. Another study suggested that condom use is more prevalent among men who are not in a steady sexual partnership than among others. Thus, males may compensate for risky sexual behaviour by using condoms[13]. However, drawing an inference on the basis of the study findings suggests that more research is needed to probe what happens to condom usage when a sexual relationship becomes serious among young people. Conversely, previous research among young people and South African women clearly demonstrates that condom usage is under-utilized in this significant population, who remain highly vulnerable to HIV[13].

Across provinces, positive sexual behaviours varies and differs among young female persons in South Africa. This study findings reported having a single sexual partner among females was highest in KwaZulu-Natal, Eastern Cape, Limpopo, Western Cape, Northern Cape, Free State, and North West, and lowest in Mpumalanga and Gauteng Provinces, while Gauteng and Mpumalanga Provinces were found to have a higher numbers of those who used condoms at last sex. To date, South Africa has one of the highest prevalence of HIV in the world, with 12.2% (6.4 million persons) of the population being HIV-infected in 2012[28]. The burden of HIV varies considerably across various sociodemographic factors and geographical areas across the nine South African provinces. For instance, KwaZulu-Natal has the highest HIV-prevalence (17.4%), followed by Free State (14.7%), Mpumalanga (14.5%), North West (13.9%), Gauteng (12.8%), Eastern Cape (12.2%), Limpopo (9.4%) and Northern Cape (7.8%) provinces; while Western Cape province has the lowest HIV-prevalence (5.1%)[12]. Obviously, the magnitude of the HIV/AIDS epidemic requires an intensified response in building strategies to sensitize high-risk young adults in KwaZulu-Natal[12]. Also, a decline in condom use with age is reported lower in females than in males. Similar findings have been reported in surveys with varying contexts, in young adults residing in major cities in South Africa such as in Johannesburg, Cape Town and Durban[29]. Interventions may raise awareness on STI and HIV infections, and compared to males, females bear a higher burden of the HIV epidemic in South Africa among young adults aged 15−34 years[7].

The reasons for the current results and variations may be linked to the differences in societal norms about sexual behaviours among young adults. This explains the provincial differences in the patterns and trends of risky sexual behaviours with numerous sexual partners and non-condom use during last sex. This finding could imply attribution primarily to shifting common myths and social norms as a result of globalization, which causes changes in sociodemographic factors such as media exposure, education, work status, wealth status, and population group[30]. The incidence rates at which these changes occur differ by provinces, having an impact on the behaviours of young adults towards sexual behaviours. For instance, young adults in Western Cape province may be more liberal than their counterparts in Mpumalanga province. This could be attributable to policies and programmes aimed at educating young people about sexuality at the provincial level and national scale. Risky sexual behaviours vary across provinces such as unprotected sex, an early sexual debut, taking alcohol or drugs before sexual intercourse, multiple sexual partners, forced or coerced sexual intercourse for reward. This can influence the variations of risky sexual behaviour by gender across provinces[31]. The implication of this finding is to design intra-cluster policy programmes aimed at reducing risky sexual behaviour in order to address the unmet reproductive needs of young South African adults[10,21,23].

At the socio-demographic level, education was a protective factor for condom use and single sexual partnership among both male and female young adults in all the provinces. This is similar to the findings of other studies that reported the association between education and condom use/single sexual partnership among young persons[2,6]. The increase in condom use and single sexual partnership with primary and secondary/higher education level may be as a result of the role education plays in societal transformation, and also that education enhances females' self-esteem, self-confidence, ability to make decisions, and freedom of expression. The adjusted odds ratio showed a lower odds of condom use and engaging in a single sexual partnership among young adults with primary and secondary education in this study. In a few provincial studies conducted, a delayed sexual debut was one of the

positive sexual behaviour predictors, and the findings implied the importance of the existing programmes encouraging abstinence and delayed sexual debut in South Africa. These include the USAID South Africa school-based sexuality, HIV prevention education activity and YouthLens on Reproductive Health and HIV/AIDS: Abstinence and Delayed Sexual Initiation. These programmes have been reported as an effective tool that influences positive impact on the condom usage and multiple partner reduction among young adults in South Africa[23,25].

Some comprehensive sexuality education programmes and policies on abstinence from sexual activity have been disapproved of[24,26,32] as there was limited understanding of approaches to address deeply held community norms and biases against premarital sexual activity among young adults. We do not have a better understanding of what works—and what does not—in responding to the needs and problems of young adults. Also, these policy programmes and interventions were funded by international organizations such as UNFPA, USAID and other funding donors. However, other global establishments and donors came up with another sexuality education programmes such as the ABC Approach to Behaviour or the ABC model: Antecedents (what happened before the behaviour?)[33]. The ABC model is an effective way to understand the challenging behaviour and develop suitable responses within a positive behaviour support plan for young people. This has further assisted in removing the emotion from challenging behaviours, analyzing behaviours, and creating effective responses for young people[31,33]. In nations like Zambia and Namibia, changes in these sexual activities have helped to reduce rates of STI and HIV/AIDS[34,35]. It is critical to maintain this progress in order to meet the SDGs, which have identified lack of access to sexual and reproductive health care as one of the major concerns for young people, most especially in the sub-Saharan African countries[35].

Also, wealth status was found to be a protective factor for condom use at last sexual activity among young adults at the household level, and middle wealth status was connected with positive sexual behaviours in young adults in South Africa. Thus, household wealth status typically impacts young adults' education and work status, since this may also explain females' autonomy, which empowers them to negotiate condom use with their sexual partners[36,37]. Socio-cultural and gender norms have promoted specific and distinct behavioural norms and roles that have been shaped for male and female adults[38], which may have an effect on the sexual behaviours of young adults being studied. Thus, socioeconomic factors such as wealth and work status need to be reinforced. These findings may possibly influence policymakers and practitioners to identify strategies and approaches to empower young adults to make informed decisions that avoid sexual risk, support attainment of future goals, and promote healthy outcomes[39,40]. Identifying the factors that influence young adults' decisions to avoid sexual activity (especially for sexually inexperienced young adults) or cease sexually activity (especially for sexually experienced youth) supports development of programming and policies focused on young adults' outcomes[40-46]. Thus, programme facilitators and developers may focus on the modifiable influencing factors when designing and improving programme interventions.

Strengths and limitations

The study provided a nationally representative sample to produce generalizable results with regard to young adults aged 15-34 who have experienced sexual behaviours and engaged in risky sexual behaviours. This is crucial for introducing specific preventive interventions, as these young adults may remain victims of multiple sexual partners and HIV/STIs[4,41]. However, the study is not without its limitations. First, the experiences of non-condom use and involvement in multiple sexual partnerships, especially among young people who are in marital unions and among those age 25−29 and 30−34 years old, may have been under-reported because of the social stigma associated with these behaviours. Secondly, data called on self-reported sexual behaviours may be biased or inaccurate, as females may tend to under-report the number of sexual partners for cultural reasons, while males may over-report condom use and multiple partners as they think it reinforces their masculinity.

Conclusions

Risky sexual behaviour is a reality in South Africa and is mostly associated with young persons aged

15−34 years old. This population has a large pool of human capital that can stimulate economic dividends and growth[43]. However, the large proportion of young persons engaging in risky sexual behaviours raises questions about the protective nature they choose. A better understanding of the external settings, social and individual factors encouraging positive sexual behaviours may help to direct in carrying out intervention programmes via community and social media platforms. Further research also needs to examine the causal relationship between positive sexual behaviours and risky sexual behaviours as well as its associated factors to help determine possible triggers. Significant others such as parents and guardians must be encouraged to have a fruitful discussion with young adults about the benefits of adopting positive sexual behaviours. Health demographers, sociologists, psychologists and public health experts in all African countries must engage in effective strategies that are made open and more informed, which will help young adults to sustain positive sexual behaviours, and also encourage their counterparts who are not adopting safer sexual behaviours.

Policy implications

These findings suggest that programmes aimed at young people should foster a sense of hope and possibility about the future, and the development of goals and aspirations to sustain positive sexual behaviours. Reproductive health and HIV/AIDS educators must look beyond demographic determinants of sexual behaviours of young persons and provide interventions that consider cultural norms in the region. 'Significant others and religious leaders must help young persons to make positive decisions that will influence their sexual and reproductive health. Therefore, for SDGs to be effectively implemented to have the best impact on interventions addressing sexual behaviours among young persons, unbiased comprehensive sexuality education should be strengthened, as prevention has been proven to be better than cure. Existing programmes should be reviewed to examine how promotion messages on condom use, abstinence/delayed sexual initiation, and maintaining a single sexual partnership have been communicated to young persons, and how such messages could be more effectively communicated in the future.

Author contributions

MEA conceptualized the study, analyzed the DHS datasets, interpreted the DHS data revised and edited the manuscript and was the primary contributor to manuscript writing. MEA and ESI read the manuscript and agreed on the findings and the views expressed within. All authors have read and agreed to the published version of the manuscript.

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Conflicts of interest

The authors declare no conflict of interest.

Data availability

Data are from the Demographic and Health Survey and the dataset is open to qualified researchers free of charge. In order to access the data from DHS Measure, a written request was submitted to the DHS MACRO and permission was granted to use the data for this survey. To request access to the dataset, please apply at https://dhsprogram.com/data/dataset_admin/loginmain.cfm?.

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