

Evidence on factors influencing contraceptive use and sexual behavior among women in South Africa

A scoping review

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Abstract

Introduction: Contraceptive use and sexual health behavior remain a prominent public health concern in South Africa (SA). Despite many government interventions, unintended pregnancies and termination of pregnancies remain relatively high. This review aimed to map evidence on factors influencing contraceptive use and sexual behavior in SA.

Methods: We conducted a scoping review guided by Arksey and O'Malley's framework. We searched for articles from the following databases: PubMed/MEDLINE, American Doctoral Dissertations via EBSCO host, Union Catalogue of Theses and Dissertations (UCTD) and SA ePublications via SABINET Online and World Cat Dissertations, Theses via OCLC and Google Scholar. Studies published from January 1990 to March 2018 were included. We used the Population, Concept, and Context (PCC) framework and the PRISMA chart to report the screening of results. The Mixed Method Appraisal Tool (MMAT) version 11 and ACCODS tools were used to determine the quality of the included studies.

Results: A total of 2030 articles were identified by our search criteria for title screening. Only 21 studies met our inclusion criteria and were included in quality assessment stage. We found that knowledge of a contraceptive method, length of a relationship, sexual debut, age difference between partners availability of a contraceptive method, long waiting hours, and nurse's attitudes toward human immunodeficiency virus (HIV) positive or younger clients predict whether or not women use a contraceptive method or improve sexual behavior.

Conclusion: There remains a necessity for improving educational programs aimed at transferring knowledge on contraceptives and sexual behavior to both women and their male counterparts, alongside the public health systems' improvements.

Abbreviations: AACODS = Authority, Accuracy, Coverage, Objectivity, Date, Significance, AIDS = acquired immunodeficiency syndrome, DMPA = depot medroxyprogesterone acetate, HIV = human immunodeficiency virus, HSRC = Human Sciences Research Council, IUCD = intrauterine contraceptive device, LMIC = low and middle-income countries, LNG-IUS = levonorgestrel releasing intrauterine system, MeSH = Medical Subject Headings, MMAT = Mixed Method Appraisal Tool, MRC = Medical Research Council, PCC = Population, Concept, and Context, SA = South Africa, SDGs = Sustainable Development Goals, SSA = Sub-Saharan Africa, STI = sexually transmitted infections, UCTD = Union Catalogue of Theses and Dissertations, WHO = World Health Organization.

Keywords: abortion, contraceptive use, family planning, maternal mortality, pregnancy, sexual behavior, South Africa

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This study does not include any animal or human participants. Ethics approval and consent to participate are not applicable.

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The datasets generated during and/or analyzed during the current study are publicly available.

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1. Introduction

Access to safe and effective contraceptive methods is one of the cornerstones of reproductive health.^[1] However, the degree to which women manage various aspects of their sexual and reproductive health, including the prevention of unintended pregnancies, maternal mortality, and exposure to human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), raises questions of health promotion concern.^[2] The sub-Saharan African (SSA) region experiences more than 14 million abortions each year.^[3] Almost half of the pregnancies are happening among women aged 15 to 24 years.^[4] More than 13% and 16% of these pregnancies end in abortions and miscarriages, respectively.^[5] As a result of maternal-related complications, one in 26 women of reproductive age die in Africa, compared to one in 9400 in European counterparts.^[6]

Almost all of the deaths affecting the low and middle-income countries (LMIC) account for 99% of maternal mortality among women aged 15 to 49 years, globally.^[7] In response to this reproductive health challenge, the South African (SA) government joined the global community in adopting the Sustainable Development Goals (SDGs), which aim to ensure universal access to sexual and reproductive health for all women by the year 2030.^[8] Some of the main objectives of the department of health in SA is to reduce the maternal mortality in facility ratio to 100 (or less) per 100,000 live births and increase the rate of contraceptive use to 75% by 2030.^[8]

Many plans and policies have been introduced by the SA government towards improving contraceptive use, including

- (a) the National Health Act (61 of 2003);
- (b) the new National Adolescent Sexual and Reproductive Health and Rights Framework Strategy (2014–2019);
- (c) the Strategic Plan for Maternal, Newborn, Child, and Women's Health and Nutrition in South Africa (2012–2016);
- (d) the 2012 National Contraception and Fertility Planning Policy;
- (e) the Strategic Plan for Maternal, Newborn, Child, and Women's Health; and
- (f) the Campaign for Accelerated Reduction of Maternal and Child Mortality.^[9–12]

The National Health Act (61 of 2003) acknowledges the health needs of vulnerable groups, such as women, and makes provisions for free health care for pregnant women, including women undergoing termination of pregnancy.^[11]

All these plans and policies acknowledge the importance of improving contraception and sexual behavior and they are largely supportive of women's rights and access to health care services.^[12] However, unintended pregnancies are persistently high. While the contraceptive rate among sexually active women had a marginal decline from 68% to 64% between 1998 and 2016, there remains high termination of pregnancy due to the high numbers of undesirable and unintended pregnancies. This is a serious public health concern, especially in the context of high HIV/AIDS infection rates.^[13]

The following contraceptive methods should be available for use by the South African general public at public health facilities based on national guidelines: female sterilization (tubal ligation), male sterilization (vasectomy), levonorgestrel releasing intrauterine system (LNG-IUS), copper intrauterine contraceptive device (IUCD), subdermal implants (Implanon), low-dose combined-oral contraceptive pills, progestogen-only injectables, progestogen-only pills, emergency contraceptive pills, male condoms,

female condoms, and depot medroxyprogesterone acetate (DMPA/Depo) and Net-EN – norethisterone enanthate.^[14]

Despite the growing number of HIV positive populations in SA, people continue to engage in unsafe sexual behavior. The 2016 South African Demographic and Health survey revealed that little progress had been made by the country with regards to improving contraceptive prevalence rate.^[13] Although more than 97% of sexually active SA women had knowledge of at least one contraceptive method in 2003, only half of the SA youth were using contraceptives in 2007.^[15]

Even HIV positive women seem to have poor sexual behavior in South Africa, resulting in 220,000 unintended pregnancies in 2010.^[16] While studies have been conducted on contraceptive use and sexual behavior, there seem to be changes to what is generally known regarding sexual behavior patterns of South African citizens. Despite the country's implementation of various intervention programs, there remains the unmet need for contraceptive use in South Africa, given the high number of unintended pregnancies.^[17] For instance, there is less likelihood of contraceptive use among HIV positive women, those with multiple sexual partners, as well as those who were diagnosed with sexually transmitted infections (STI) in the past 12 months.^[17] Issues related to poor access for HIV positive women have also been found to act as barriers to contraceptive use, leading to high unintended pregnancies.^[18] This controversy is testament to the challenges faced by government efforts to improving contraceptive use and promoting responsible sexual behavior in South Africa, hence the study investigating factors influencing contraceptive use and sexual behavior in South Africa, is both timely and appropriate.

Most of the published systematic review articles mainly focus on adolescents and their choices of contraceptive use in SSA.^[19–21] There is limited scoping reviews conducted with a specific focus on contraceptive use and sexual behavior in general population and with specific focus to SA. The main objective of this review was to map evidence on factors influencing contraceptive use and sexual behavior in SA over a period spanning from 1990 to 2018.

2. Methods

2.1. Design

We conducted a scoping review of published peer-reviewed and gray literature articles on the factors influencing contraceptive use and sexual behavior in SA. The protocol for this review was published a priori.^[22] Scoping review studies allow researchers to review existing evidence of published, peer-reviewed journal articles and gray literature related to a specific research phenomenon to understand the current status of the knowledge related to a topic of interest. This scoping review included studies published between the years 1990 and 2018 because studies published prior to 1990 are unlikely to reflect the key aspects and changes pertaining to contraceptive use and sexual health behavior. More studies were conducted after 1990 after many interventions were implemented to address these public health challenges in the era of HIV/AIDS. These years were critical components of South African response to HIV/AIDS epidemic, contraception as well as sexual behavior. This study was guided by Arksey and O'Malley's (2005) scoping review framework.^[23] We also followed the PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation.^[24] This review also

Table 1
Framework for determining the eligibility of the research questions (PCC).

Criteria	Determinants
Population	Women of childbearing age (15–49 yr)
Concept	Contraceptive use and sexual behavior
Context	Sexual health

included the quality appraisal of included studies, which was recommended by Levac et al (2010) for scoping review projects.^[25] The Population, Concept, and Context (PCC) framework was employed in this review to determine the eligibility of research question (Table 1). Studies were eligible if they reported evidence on one of the primary outcomes: knowledge and availability, relationship status, sexual debut, age difference, waiting hours, and nurse's attitudes measured at individual, partner's, household, community, and healthcare levels. Secondary outcomes were also extracted when they were reported in the included studies: pregnancy (unintended pregnancy), termination of pregnancy, sexually transmitted diseases, or infections.

2.2. Identification of the research question

Research question: what are the factors that influence contraceptive use and sexual behavior among women of reproductive age in SA?

2.3. Search strategy

This review utilized articles published as primary studies and gray literature presenting evidence on factors that influence contraceptive use and sexual behavior in women of reproductive age in SA. We searched for articles from the following databases: PubMed, American Doctoral Dissertations via EBSCO host, Union Catalogue of Theses and Dissertations (UCTD) and SA ePublications via SABINET Online and World Cat Dissertations, Theses via OCLC and Google Scholar. We also searched the Medical Research Council (MRC) and Human Sciences Research Council (HSRC) databases. We searched the World Health Organization (WHO) and governmental websites and statistics institutions for policies and guidelines on contraceptive use and sexual behavior. We included studies published from January 1990 to March 2018. We searched for eligible literature from the citations of the selected studies. We conducted databases search using the following keywords: contraceptive use, family planning, sexual behavior, HIV/AIDS, South Africa, pregnancy, abortions, maternal mortality. We used Boolean terms, such as "AND" and "OR" to separate keywords. We included the Medical Subject Headings (MeSH) terms in the keyword search. We conducted title screening from the databases and exported eligible articles to the Endnote library. The eligibility criteria for abstracts and full articles screening were conducted by the two independent reviewers (MH and SM).

2.4. Eligibility criteria

2.4.1. Inclusion criteria. These principles were used to determine the studies presenting evidence of the following criteria:

- Studies presenting evidence published between January 1990 and March 2018.
- Studies presenting evidence that were published in SA.

- Studies presenting evidence on women aged 15 to 49 years.
- Studies presenting evidence on contraceptive use.
- Studies presenting evidence on sexual behavior.

2.4.2. Exclusion criteria. Studies with the following characteristics were excluded.

- Studies published before 1990.
- Studies with no evidence on contraceptive use or sexual behavior.

2.5. Quality of evidence

To determine the quality of the selected studies, a Mixed Method Appraisal Tool (MMAT) version 2011, was adopted and piloted by the two independent reviewers (MH and SM). The MMAT tool was utilized to scrutinize the relevance of study aim, adequacy and methodology, study design, data collection, study selection, data analysis, presentation of findings, author's discussions, and conclusions. Each study was assigned an overall grade of high, moderate, or low risk of bias. The following criteria were followed: for qualitative and quantitative studies the score was a number of criteria met by each study divided by 4, with 25% indicating that at least one criterion was met by the study while 100% indicates that all criteria were met.^[26] For the mixed methods studies, the score was 25% when one criterion was met, 50% when two criteria were met for a domain, 75% when three criteria were met for a domain, and 100% when all criteria were met for all domains.^[26] Domains comprise of qualitative, quantitative, and mixed methods components. The gray literature articles were appraised using the Authority, Accuracy, Coverage, Objectivity, Date, Significance (AACODS) checklist form which is designed to enable evaluation and critical appraisal of gray literature.^[27] An overall quality percentage score for each of the included studies was calculated and scores interpreted as low quality ($\leq 50\%$), average quality (51–75%), and high-quality (76–100%).

2.6. Charting the data

In this review, we sorted the information of the selected studies according to the following categories: author and date, journal full reference, aims or research questions, study population, age, gender, percentage of women (i.e., participants), percentage of men (i.e., participants), geographic setting (i.e., rural/urban/semi-urban), study design (i.e., survey type), data analysis (i.e., methodological approach used in data analysis) and intervention, type of contraceptive. Information obtained from studies were further summarized as

- (a) most relevant finding (i.e., benefits of contraceptive use or better sexual behavior versus perceived risks),
- (b) most significant finding (i.e., reasons or factors for contraceptive use or vice versa), and
- (c) conclusions pertaining to the study.

All extracted information was mapped in data charting forms by the first author. Study types, such as quantitative, qualitative, mixed methods, and prospective studies were reflected in the charting form. Data charting form was continually updated with the latest information and it included the highlighting of the key aspects which were designed and piloted. Updating of the data charting form was conducted continuously.

2.7. Collating and summarizing the findings

For coding and analyzing of data from the selected articles, content analysis of the extracted data was conducted. We first compared across all quantitative studies how frequently different explanatory variables for contraceptive use and sexual behavior were used and how often these variables were found to represent a significant determinant. Qualitative information was organized in the form of the main themes identified and explored across the selected qualitative studies. The pathways framework suggested by Shaikh et al (2010) to differentiate between different levels to predictor variables was adopted for reporting findings.^[28] This framework looks at levels, such as individual level (i.e., woman as a user), partner level, couple level, household and community level, and healthcare service level.^[28]

2.8. Patient and public involvement

No patients and/or animal participants were involved in this review. Ethics approval and consent to participate was not applicable.

3. Results

As shown in Figure 1, a total of 2030 articles were identified by our search criteria for title screening. After the title screening exercise, 52 articles were exported to Endnote library for further screening, while five articles were retrieved from other sources. This left us with 57 articles in our Endnote library. As many as 1979 articles were removed at title screening stage because they formed part of our exclusion criteria (i.e., those with no evidence on contraceptive use or sexual behavior, those published before 1990 and those conducted outside of SA). After removing duplicates, 51 articles remained and these articles were screened for abstracts, while 24 were excluded. Of the remaining 27 articles, six were excluded for the following reasons: three studies were conducted outside of SA, one study was an opinion paper, and another study was conducted only among male participants. The last excluded study was conducted among the minors below the age of 15 years. Only 21 studies met our inclusion criteria and were included in content analyses and quality assessment stage.

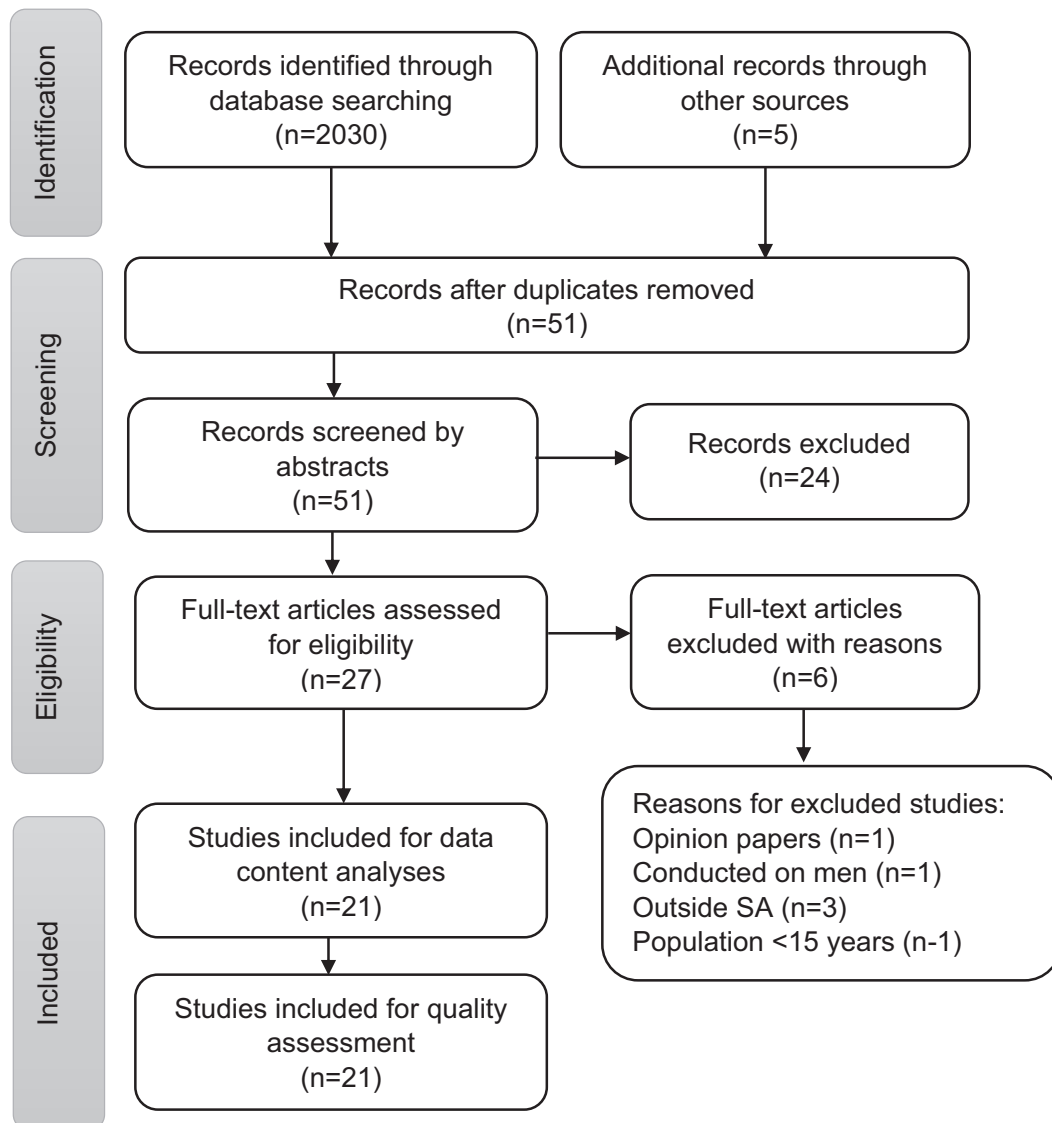


Figure 1. PRISMA flow diagram of the study selection process.

3.1. Characteristics of included studies

The PCC framework is presented in Table 1. The detailed characteristics of the included studies are shown in Table 2. All the eligible studies were published between the year January 1990 and March 2018. Fourteen studies were quantitative,^[14,29–41] four were qualitative,^[42–45] two were mixed methods,^[46,47] and only one was a prospective study^[48] (Fig. 2). At least eight provinces of SA had one or more studies conducted in each, with KwaZulu-Natal having the highest number (n=6) of studies. The other provinces comprised of Western Cape (n=2), Eastern Cape (n=2), Gauteng (n=2), and nationally representative studies (n=5). Provinces such as Limpopo, North West, Mpumalanga, and Free State had one each study. The total sample size from the included studies was 38,073 participants. The female participants were dominant (N=35,641) as compared to male (N=2432) participants. The majority of studies (81%) were published from 2010 onwards. Regarding geographical distribution, eight

studies were conducted in rural areas, five in urban areas, and the remainder (n=8) in mixed settings.

3.2. Quality of evidence from included studies

Of the 21 included studies which underwent methodological quality assessment, 13 scored the highest quality score of 100%.^[29,30,33–35,37–41,45–47] Four studies scored a quality score of between 83% and 94%.^[14,32,43,44] The remaining 4 studies scored a quality score between 67% and 71%.^[31,36,42,48] The overall evidence was considered to have minimal risk of bias.

3.3. Study findings

The following sections report on the combined evidence gathered from the included studies, in a pathways framework to differentiate along with the following levels: individual woman level (user), partner's involvement, household and community involvement, and healthcare involvement level.

Table 2
Characteristics of included studies.

Author and year	Study aim	Setting	Population	Sample size	Age group	Research method	Quality score
Buga et al (1996)	To investigate the baseline patterns of sexual maturation, sexual behavior, contraceptive practice, and reproductive health among adolescents.	Rural	Female and male	1072 female and 903 male	13–20yr (extracted 15–20yr)	Quantitative	100%
Chersich et al (2017)	To assess contraception coverage in South Africa (SA) and identify underserved populations and aspects of programming that require strengthening.	Rural and urban	Female	6296	15–49yr	Quantitative	100%
Crosby (2006)	To determine the effect of family structure on the sexual behavior choices of female adolescents in South Africa.	Semi-urban	Female	2373	15–19yr	Quantitative	71%
De Klerk (2011)	To identify the factors that influence the use of contraceptive methods among 16yr old adolescents attending high schools in George, South Africa.	Rural	Female and male	103 female and 81 male	16yr	Quantitative	94%
Dubbink et al (2016)	To describe sexual behavior reported by women living in rural South Africa in relation to age, ethnicity, and HIV status.	Rural	Female	570	18–49yr	Quantitative	100%
Hoque et al (2012)	To determine the knowledge and patterns of contraceptive usage among university students at Mangosuthu University of Technology (MUT), KwaZulu-Natal, South Africa.	Urban	Female and male	391 female and 361 male	18yr and older	Quantitative	100%
Kaida et al (2010)	To investigate whether the prevalence of contraceptive use and method preferences varied by HIV status and receipt of highly active antiretroviral therapy (HAART) among women in Soweto, South Africa.	Semi-urban	Female	563	18–44yr	Quantitative	100%
Kistnasamy et al (2009)	To assess the knowledge and use of emergency contraception (EC) against the background of current sexual practices among a multi-racial student population at the Durban University of Technology (DUT) in the	Urban	Female and male	162	21–25yr	Mixed methods	100%

(continued)

Table 2
(continued).

Author and year	Study aim	Setting	Population	Sample size	Age group	Research method	Quality score
Kunene (2013)	province of KwaZulu-Natal, South Africa. To investigate factors influencing the use of emergency contraceptive among young people attending a university in Durban, South Africa.	Urban	Female	20	18–25 yr	Qualitative	71%
Marlow et al (2015)	To examine contraceptive use and dual protection in the post-partum period in a Prevention of Mother to Child Transmission (PMTCT) population in Durban, South Africa and whether it varied by HIV status.	Urban	Female	821	15–49 yr	Prospective study	67%
Marlow (2012)	To examine whether knowledge of HIV status affects women's modern contraceptive use post-partum.	Semi-urban	Female	846	18–49 yr	Quantitative	71%
Lince-Deroche et al (2013)	To describe the potential and pitfalls for contraceptive services in South Africa.	Urban and rural	Female and male	n/a	15–49 yr	Quantitative	83%
Ndinda et al (2017)	To understand the dynamics surrounding access to and use of family planning services in peri-urban and rural areas of KwaZulu-Natal.	Rural	Female and male	91 female and 46 male	15–49 yr	Mixed methods	100%
Osuafor et al (2017)	To examine the pattern of method use among women in steady relationships.	Rural	Female	568	15–49 yr	Qualitative	83%
Peltzer et al (2013)	To assess sexual HIV risk behavior and it's associated factors among pregnant women in Mpumalanga, South Africa.	Rural	Female	1502	18–47 yr	Quantitative	100%
Seutlwadi et al (2012)	To investigate contraceptive use and associated factors among South African youth aged 18 to 24 yr who reported having had sexual intercourse.	Rural and urban	Female and male	3123	18–24 yr	Quantitative	100%
Smit et al (2002)	To determine the extent to which condoms are used, reasons for contraceptive method choice, and unmet contraceptive need.	Rural	Female	848	15–49 yr	Quantitative	83%
Stephenson et al (2008)	To examine community and health facility influences on the method choices of women aged 15 to 49 who lived in the Eastern Cape.	Rural	Female	1165	15–49 yr	Quantitative	100%
Titus (2017)	To identify socio-cultural factors that influence condom use intentions and behaviors among migrant youth in the Western Cape, South Africa.	Urban and rural	Female and male	10 female and 10 male	20–25 yr	Qualitative	100%
Van der Westhuizen et al (2016)	To determine the knowledge, in terms of quantity and quality, about the IUCD as a method of contraception among pregnant patients attending the High Risk Obstetric Clinic at Pelonomi Tertiary Hospital in Bloemfontein, SA.	Urban/semi-urban	Female	193	18–49 yr	Quantitative	100%
Worku (2014)	To identify and quantify key factors that affect adverse pregnancy outcomes and the utilization of modern contraceptives.	Urban	Female	8497	15–49 yr	Quantitative	100%

n/a = not applicable.

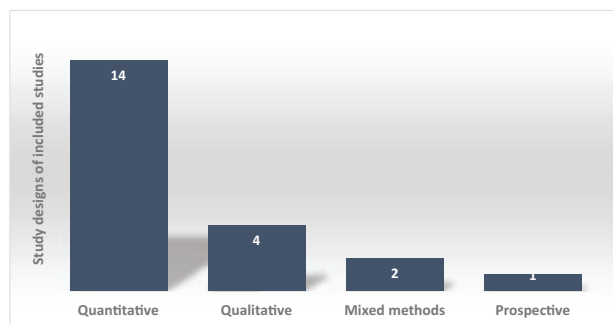


Figure 2. Study designs of included studies (N=21).

3.3.1. Individual woman level. *Age of the woman* was explored in five studies.^[28,31,40,44,48] Two of these studies were conducted in rural settings, one in an urban setting and another two in both rural and urban settings. Four of these studies were quantitative, while one was qualitative. Some studies revealed age as a strong determinant of contraceptive use and sexual behavior. Some studies showed low levels of knowledge of modern contraceptive method among adolescents.^[29,49] Only half of the adolescent girls surveyed could list at least one modern contraceptive.^[29] The sexual debut for the majority of adolescent women has been found to be at 15 years, with the average ages of pregnancy being 19 years in other studies.^[32,41] The majority of the migrant youth; however, debut at age 18 years due to higher educational aspirations.^[45] Only about a quarter (24%) of sexually experienced women in the adolescent age group had ever used contraceptives, while just half had ever heard of emergency contraception.^[29] Buga's (1996) article further revealed that, despite the poor knowledge of modern contraceptive methods among adolescent women in SA, the fear of attending family clinic services and disapproval by male partners also contribute to this age group's poor contraceptive use.^[29] In general, more adolescents heard about contraception for the first time at school rather than at home.^[32]

Knowledge of a contraceptive method was explored in six studies.^[31,35,39,43,45,47] Two-each of these studies were conducted in rural, urban, and mixed settings. Four of these studies were quantitative, one-each was mixed methods, and a prospective study. These studies revealed knowledge of a contraceptive method as a strong determinant of contraceptive use. Despite the lack of adequate knowledge of all contraceptive method among adolescent girls, women in general, have high knowledge of at least one contraceptive method available in SA. The injectable contraceptive method and the condom appeared to be the most used form of contraception. At least six studies found injectable contraceptives to be the most commonly used method of contraception.^[32,36,40,44,48,50] As high as 95%, 88%, and 76% of respondents knew condoms, the contraceptive pills and the injectable contraceptives, respectively.^[32] However, injectable contraceptive method was reported to have side effects by some women, including spotting or heavy bleeding.^[36]

Despite the high knowledge of a contraceptive method among women of reproductive age in SA a study by De Klerk (2015) revealed that there remains poor knowledge of intrauterine contraceptive device (IUD) and the emergency contraceptive pill.^[32] A study conducted at the KwaZulu-Natal tertiary institution also revealed that the majority of students were not

familiar with the most effective time-frames for taking emergency contraceptive pills nor with the side effects associated with its use.^[46]

3.3.2. Partner's involvement. The *partner's* contribution to contraceptive use and sexual behavior was examined in eight studies.^[27,32,33,35-37,44,46] Four of these studies were conducted in rural settings, two in urban settings, and two in mixed settings. Five of these studies were quantitative, one qualitative, one mixed methods, and one was a prospective study. In terms of sexual health behavior among women of reproductive age, condom use peaks at the beginning of relationships or with casual multiple partners; however, this trend decreases with an increase in relationships duration.^[45] Women who do not use condoms are usually in a long term relationship.^[45] This study further indicated that inconsistent use of condoms was highlighted by most participants and was based on relationship status, pregnancy prevention, and trust dynamics in the partnership.^[45]

However, the use of condoms at first sexual debut was very low among adolescents due to being inexperienced and unplanned moments of sexual intercourse.^[45] The decision-making process in the first sexual activity is largely made by the male partner.^[45] This was supported by two quantitative, one qualitative, and one mixed method studies, of which two were conducted in mixed settings (i.e., both rural and urban) and one in each setting.^[34,36,45,47] These studies revealed that partners are often opposed to condom use and this can negatively impact on a woman's ability to negotiate sex and condom use because it is assumed to lessen the pleasure of sex, intimacy, and trust.^[34,36,45,47]

Male partners are usually reported as perpetrators of physical partner violence, psychological distress, and having concurrent partners, which in turn is associated with sexual risk behavior.^[27] The age difference as a determinant for both sexual behavior and non-contraceptive use was also revealed in a quantitative study conducted in a rural setting.^[33] This study revealed that women who had sex with a partner whose age difference was at least 10 years or more, were less likely to use a condom.^[33] Alcohol use was found to be associated with multiple sexual partners in another rural-based quantitative study.^[37] The situation becomes worse because not knowing partner's HIV status remained associated with significantly lower odds of condom use at last sex.^[38]

Further findings from Seutlwadi et al (2012) indicated that having talked with the partner about condoms in the past 12 months were strong determinants of contraceptive use, while not having been pregnant, being HIV negative, not having had an STI in the past 12 months and not having had early sexual debut (below 15 years of age) were associated with current contraceptive use.^[38] Timely notification of HIV status coupled with prevention messages can contribute to reductions in sexual risk behaviors. This study further revealed that although 79.1% of females reported having had unintended pregnancies, they were not motivated to use contraceptives. Contrary to what is generally known, being HIV positive, having been diagnosed with an STI in the past 12 months, having concurrent sexual partners and early sexual debut have been strongly associated with low contraceptive use.^[38]

3.3.3. Household and community involvement. Determinants grouped at a *household or community level* such as education and employment were examined in five studies.^[32,38,39,43,46]

Three of these studies were conducted in rural areas, one in an urban setting, and another one was conducted in mixed settings (i.e., both urban and rural areas). Three of these studies were conducted using a quantitative research method, while one each was qualitative and a mixed method, respectively. These studies found level of education and employment status to be significant predictors of contraceptive use.^[32,38,39,43,46] A study by Osuafor et al (2017) revealed that employed women were three times more likely to report dual contraceptive methods use compared to those who were unemployed.^[43] Poor socioeconomic status limits women's access to family planning services (e.g., transport costs). Due to poor socioeconomic status, some women end up depending on their partners for financial support. This, combined with other aspects of gender inequality weakens women's bargaining power when it comes to negotiating condom use.^[47] However, women who worked outside the home were more likely than those who were not employed to be using the pill instead of the injection, while women living in wealthier households were less likely than those in poorer households to be using a more permanent method in lieu of the injection.^[39]

Educated women are known to possess better bargaining powers as far as contraceptive use is concerned. The level of education and employment status have been shown to influence contraceptive use.^[46] Peer pressure and living away from family support structures may also contribute to increased sexual activity, especially among younger women.^[46]

3.3.4. Healthcare involvement. Determinants grouped at a *healthcare level* such as availability of contraceptives, long waiting hours, and nurses' attitudes were examined in five studies.^[14,34,36,42,49] Three of these studies were conducted in urban areas, one in urban, and another one was conducted in both urban and a rural area.^[14,34,36,42,49] Three of these studies were conducted using a quantitative research method and one each was qualitative, and mixed methods. Some of these studies found non-availability of contraceptives, long waiting hours, and nurses' attitudes at clinics to be negatively associated with contraceptive use.^[42,49] A study by Hoque et al (2012) found that more than 60% of women reported the unavailability of contraceptives as the reason for poor usage of contraception.^[34] The SA public health clinics are known for being understaffed and overloaded with patients. This was evident in another study which revealed that due to overcrowding and long queues in clinics, patients are forced to wait for long periods of time (hours) and this sometimes lead to women being afraid to ask the nurses family planning-related questions due to many patients needing services.^[36] Nonetheless, when women do find a rare opportunity of asking questions related to family planning, nurses usually promote hormonal contraceptives for family planning and condoms for STI prevention.^[36]

Nurses can also influence method choice and/or continuation of methods – intentionally or otherwise – through sub-standard or biased counseling.^[14] Another quantitative study conducted in both urban and rural settings found that counseling is often limited to few contraceptive methods (usually one or two), instead of the entire methods available at the facility.^[14] This may also be due to the limited available contraceptive methods or nurses pushing the queue, hence limiting the time spent with each patient. At least two studies from both urban and rural settings (one qualitative and another one conducted using the quantitative method) reiterated that women generally encounter negative attitudes from nurses.^[14,42] Such discrimination by healthcare

providers is usually targeted to patients that are either younger (i.e., adolescents) or those that are infected with HIV.^[14]

4. Discussion

This study aimed at mapping evidence on the factors affecting contraceptive use and sexual behavior among women of reproductive age in SA, over a period spanning from 1990 to 2018. Free access to contraception and safe sexual behavior has become a key priority for the SA government.

This review showed that healthcare workers' negative attitude creates a barrier to adolescent girls accessing contraceptive services.^[51] Younger women may likely be discouraged from seeking family planning services in public health clinics, for fear of being judged and/or discouraged from receiving their preferred contraceptive services. Similar findings were also shown in other settings where healthcare providers were found to be advising adolescents to abstain from sex in studies conducted in South Africa, Kenya, and Zambia.^[52,53]

As found in this review, health systems challenges, such as poor working conditions and contraceptives stock-outs may compromise the provision of quality healthcare services. It is known in South Africa, that public health clinics are understaffed and overloaded with patients, thereby leading to long queues. These challenges may likely discourage women from seeking detailed family planning-related information as well limiting healthcare workers from communicating effectively with their patients.^[54] While this is the case, lack of training among some nurses in public health clinics remain an obvious barrier to the provision of quality family planning services.^[55,56]

Many women largely depend on their male partners for financial support due to poor socioeconomic status in SA. Such dependency is connected to weakened women's bargaining power for using condoms during sexual intercourse. The situation becomes even worse when women are less educated, unemployed, and residing in traditional rural areas. This also exposes women to new HIV infections given the poor HIV testing uptake among men.^[57,58]

The findings of this study are consistent with the findings of other studies conducted elsewhere in Africa.^[59,60] Similar findings indicated that demographic and socioeconomic factors, such as age, race, employment status, education, and geographical location are associated with contraceptive use.^[39,61] The dominance of men over their women partners remain a strong predictor of contraceptive use.^[62] While this is the case, the situation becomes even worse when women are uneducated, unemployed, and come from traditional rural settings. This is precisely because they possess very little bargaining power when it comes to negotiating safe sex with their partners and very few have control over their partner's sexual behavior.^[63]

The knowledge of a contraceptive method is high among women in general. This review showed that the injectable contraceptive method was mostly used by women of reproductive age. There also remains a gap in knowledge particularly with regards to appreciating the benefits against the side effects.^[46] Further studies have shown that the main reasons for implant removal were side effects, such as intolerable bleeding for two-thirds of removers as well as headaches in almost a half,^[64] while nurses' low confidence in providing implant services effectively,^[65] may also act as a barrier toward women accessing this contraceptive method. It has also been revealed that a condom usually lessens the pleasure of sex, intimacy, and trust, while

concerns over the pains resulting from using a condom during sexual intercourse were also raised.^[66]

4.1. Strengths

We maintained quality measures by conducting quality appraisals of the peer-reviewed journal articles and gray literature. We further applied the eligibility criteria rigorously as part of extracting only the relevant information. The quality of the included studies was conducted for both peer-reviewed and gray articles. All included studies underwent quality appraisal using an approved tool, the MMAT,^[67] and the ACCODS tool for gray literature studies to assess for bias.^[27] Our full article screening tool was piloted to ensure the reliability of included studies.

4.2. Limitations

There is a likelihood that this scoping review did not identify all relevant studies despite all the efforts to do so. Despite the generally relevant keywords/terms used while searching for relevant articles in different databases, other terms may also exist as a reference to contraceptive use and sexual behavior. As such, those may have been missed. Although our title screening included a wide range of databases, the overall search strategy may have been biased toward public health and social sciences. Searching other bibliographic databases may have yielded additional published scoping reviews. While our review included any article published in any language, our search was conducted using only English terms. Despite these limitations, we believe that our search strategy was comprehensive in reviewing the public health and social sciences literature on contraceptive use and sexual behavior in SA. Furthermore, we believe that we managed to address the study aim, which was to determine factors that influence contraceptive use and sexual behavior among women of reproductive age in SA.

4.3. Recommendations for future research

More primary studies are necessary to further investigate factors related to contraceptive use and sexual behavior, particularly among key populations, mainly due to high HIV infection rates. With the possible introduction of male contraceptive pills, it would be important to determine the levels of male contraceptive users while investigating the effects on users as well as factors contributing to continuity or lack thereof. The question also remains whether or not the sexual behavior of South Africans is becoming riskier over time.

4.4. Implications for practice

Integrating family planning services with the delivery of other general services within a clinic would play a positive role in reducing the stigma experienced by younger women and those who are HIV positive, as well as reducing long queues. Government interventions aimed at educating youth about the benefits of contraceptive use and the risks involved when one is exposed to unprotected sexual activities should be integrated with school-health programs to improve knowledge and uptake of contraception among school-going sexually active women. School-based programs should be designed not only to be driven by teachers but also by parents as well. Peer educators should also

be used as pioneers to promote reproductive health education among adolescents and school-going children.

5. Conclusion

This review revealed a gap which affects the uptake of contraceptive methods in SA. The factors associated with poor contraceptive use and sexual behavior and the reasons provided by women to explain their challenges regarding contraceptive use and sexual behavior appear to be largely similar across different settings and provinces in SA. Therefore, there is a need for improving educational programs aimed at transferring knowledge to both women and their male counterparts, while improving public health systems. We, therefore, conclude that contraceptive use and sexual health behavior leave room for improvement in SA. Programs aimed at improving contraceptive use and sexual behavior should mainly focus on adolescents, uneducated women, those who reside in rural areas, as well as those who are unemployed. This review further revealed that partners can either support or hamper women's decisions on sexual activity and contraceptive use, hence they also need to be included in the interventions.

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Author contributions

MH conceptualized and designed the study, as well as prepared the initial draft. KH and TPM-T reviewed the study. SM contributed to the abstract and full article screening. All the authors reviewed the draft and approved the final version of the manuscript.

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