



HHS Public Access

Author manuscript

Arch Sex Behav. Author manuscript; available in PMC 2022 February 01.

Published in final edited form as:

Arch Sex Behav. 2021 February ; 50(2): 615–627. doi:10.1007/s10508-020-01701-2.

“I’d rather use a refuse bag:” A qualitative exploration of a South African community’s perceptions of government-provided condoms and participant preferred solutions

Cho Hee Shrader¹, Kenisha Peters², Mariano Kanamori¹, Roger Rochat³, Aaron Siegler⁴

¹Division of Prevention Science and Community Health, Department of Public Health Sciences, University of Miami Miller School of Medicine, 1120 NW 14th St. Ste 1006, Miami, FL, 33132, USA;

²Washington, DC, USA

³Hubert Department of Global Health, Rollins School of Public Health, Emory University, Atlanta, GA, USA

⁴Department of Epidemiology and Department of Behavioral Sciences and Health Education, Rollins School of Public Health, Emory University, Atlanta, GA, USA

Abstract

Terms of use and reuse: academic research for non-commercial purposes, see here for full terms. <https://www.springer.com/aam-terms-v1>

cshrader@miami.edu.

Authors’ contribution statements

In accordance with the CRediT taxonomy, the authors contributed towards the manuscripts as follows. Cho-Hee Shrader contributed towards this manuscript through Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Resources, Data Curation, Writing – original draft preparation, Writing – review and editing, Project administration, and Funding acquisition. Kenisha Peters-Jefferson contributed towards this manuscript through Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Resources, Data Curation, Writing – original draft preparation, Writing – review and editing, Project administration, and Funding acquisition. Mariano Kanamori contributed towards this manuscript through Resources, Writing – original draft preparation, Writing – review and editing, and Funding acquisition. Roger Rochat contributed towards this manuscript through Conceptualization, Methodology, Software, Validation, Resources, Writing – review and editing, and Supervision. Aaron Siegler contributed towards this manuscript through Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Resources, Data Curation, Writing – original draft preparation, Writing – review and editing, Supervision, Project administration, and Funding acquisition.

Publisher's Disclaimer: This Author Accepted Manuscript is a PDF file of an unedited peer-reviewed manuscript that has been accepted for publication but has not been copyedited or corrected. The official version of record that is published in the journal is kept up to date and so may therefore differ from this version.

Conflicts of interest/competing interests

The authors disclose they have no financial interest or benefit that has arisen from the direct applications of our research.

Ethics approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of Emory University Institutional Review Board, the Human Sciences Research Council Research Ethics Committee, and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Consent to participate

Informed written and verbal consent was obtained from all individual participants included in the study.

Consent to publish

Not applicable.

Data availability

Not applicable.

Despite South Africa experiencing one of the largest HIV epidemics in the world, condom use has decreased since 2008. However, condoms are the only low-cost HIV prevention technology widely available in South Africa. This study aims to explore a South African community's perceptions of condoms, recent condom use decrease, and suggestions for increasing condom use. In 2014, we conducted seven focus groups (n=40 men) and 20 in-depth interviews (n=9 men, n=11 women) with participants aged 18 years recruited from 4 urban settlement health clinics in Cape Town, South Africa. Data were collected, coded, and analyzed using a general inductive approach. Participants perceived government-provided condoms negatively, with themes including 'disgust' for condom physical properties, concerns with social status associated with free condoms, and performance concerns. There was an intersection of themes surrounding masculinity, condom use, and sexual pleasure. Solutions to increase condom use included improving the quality and variety of free condoms, and rebranding free condoms. Participants suggested that condoms be distributed with novel attributes (e.g. more colors, smells/flavors, sizes, and in-demand brands) and that government programs should consider offering all brands of condoms at no- or low-cost. This study suggests a substantial rethinking of condom branding for government-provided condoms. Our findings suggest that condom dissemination and promotion programs should proactively address public concerns regarding condoms. Existing societal and structural norms such as hegemonic masculinity must also be addressed using gender transformative interventions. We also strongly suggest the creation of a Male Condom Acceptability Scale to understand condom users' needs.

Keywords

HIV Prevention; South Africa; condom use; global health; qualitative research

INTRODUCTION

South Africa has the highest HIV prevalence in the world, with 7.9 million people, or 21% of the population, living with HIV (Human Sciences Research Council, 2018; UNAIDS, 2010). Despite South Africa showing remarkable decreases in new HIV infections in the past decade, HIV continues to persist as an epidemic (UNAIDS, 2019). In 2018, there were approximately 240,000 new HIV infections in South Africa (UNAIDS, 2019). There are large disparities in HIV prevalence by race, with under-resourced Black communities impacted 16 times more than White communities (Human Sciences Research Council, 2018; Shisana et al., 2010; Shisana et al., 2014).

As penetrative vaginal sex is the most common cause of HIV transmission in South Africa (Human Sciences Research Council, 2018; Shisana et al., 2010; Shisana et al., 2014), and biomedical prevention strategies are not widely available, condoms remain salient as an HIV prevention strategy. The government-led dissemination of free male condoms is one of the most effective and cost-effective strategies in the prevention of HIV in sub-Saharan Africa (Creese et al., 2002). Correct and consistent use of condoms not only substantially decreases HIV transmission, but also that of sexually transmitted infections (STIs) (Holmes et al., 2004; Manhart & Koutsky, 2002; Siegler, Rosenthal, Sullivan, Mehta, et al., 2019). Condoms are inexpensive and cost-effective, with an exceptionally low-cost range of \$115-

\$304 per disability-adjusted life year: interventions 30 orders of magnitude or more costly are commonly considered to be cost-effective (Stover et al., 2017). In South Africa, condoms are the only free and available technology to provide triple protection against HIV, unintended pregnancy, and other STIs (Creese et al., 2002; Shisana, Rehle, et al., 2014).

To promote condom use, the South African government has implemented numerous social and behavioral change media campaigns, including the distribution of over 500 million free condoms at community health centers (National Department of Health, 2014; Zuma et al., 2016). At the time of this study (2014), there were 57 condom brands available on the market and four types of government-sponsored condoms distributed for free at health clinics at the national level (Baker et al., 2014; Baker et al., 2018; Pallin et al., 2013). Despite the importance of condoms, South Africans are using them less in 2017 than in 2008. The most significant decrease in condom use was first reported in 2012 and as of 2017, decreased condom use continues to persist (Human Sciences Research Council, 2018).

To explain or predict individual condom use behavior, several theories and models have been posited. The Health Belief Model posits that six constructs (perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy) constitute an individual's perceptions of the benefits and barriers to condom use (Champion & Skinner, 2008; Rosenstock, 1974; Volk & Koopman, 2001). Fishbein and Ajzen's (2012) Theory of Reasoned Action/Planned Behavior proposes that an individual's intentions influence future behavior, with societal norms toward that behavior shaping intention (Ajzen, Albarracin, & Hornik, 2012; Bosompra, 2001; Montano & Kasprzyk, 2015). Although these theories explain barriers and facilitators to condom use, they do not directly account for individual-level preferences for condoms.

Other individual-level predictors of condom use include sexual pleasure and satisfaction with condom brand and packaging. Sexual pleasure reduction has been identified as a barrier to condom use as early as 1992 (Abdool et al.) and persists as a barrier to condom use in recent studies (Osuafor et al., 2018). Both men and women report condomless vaginal sex as more pleasurable than vaginal sex with a condom, with men rating condomless vaginal sex even higher relative to women (Randolph et al., 2007). Compared to women, men are more likely to believe condom use can decrease sexual pleasure (Reddy et al., 1999). Other barriers to condom use, elucidated through a qualitative study, include unequal power in sexual decision making, women wanting to please their male sexual partners who prefer condomless sex due to a reduction in sexual pleasure, and condoms representing a perceived lack of love, intimacy, and trust within the context of the relationship (Mash et al., 2010). As apparent, condom perceptions can influence use. A randomized control trial by Weaver et al. (2011) found that when sexually active men were provided with a choice of condoms with varied characteristics (intervention group), condom uptake increased; however, condom use did not increase. The investigators found that condom use also increased in the control group, in which men were given a U.S. Agency for International Development condom that had different packaging from locally available condoms (Weaver et al., 2011). A reasonable conclusion is that preferences of packaging and branding matter and should be considered for condom dissemination programs.

As condom use does not exist in a vacuum of individual behavior, societal norms within South Africa can severely impact its use during sex. These social norms include masculinity and other gender-related power imbalances, which can negatively impact condom use by promoting sexual violence. For example, a previous study found that among men, relative to consistent condom users, inconsistent condom users were more physically and sexually violent and condom never users had more dominant masculinity attitudes (Shai et al., 2012). Among young South African women, risk of new HIV infections increased with relationship power inequity and intimate partner violence (IPV) (Jewkes et al., 2010). There are several proposed pathways to explain how gender and relationship power inequity, and rape and IPV, can directly or indirectly increase HIV infection. In accordance with Jewkes et al., (2010), direct HIV transmission factors include rape. Approximately 27% of South African men in a previous study have reported raping a woman (Jewkes et al., 2011), while 40% of women have reported being raped (Kalichman et al., 2005). In accordance with Jewkes et al., (2010), indirect HIV transmission factors include psychological distress (e.g. substance use), more risky sex (e.g. sex while intoxicated), reduced protective powers (e.g. less condom use) and more risky male partners (e.g. more controlling and violent masculinities) (Pettifor et al., 2004).

Current randomized controlled trials of biomedical prevention strategies, such as pre-exposure prophylaxis (PrEP) and microbicides, integrate preference and acceptability scales of these HIV prevention strategies. However, few assessments based on validated scales have been conducted for condoms. As characteristics of an intervention and how interventions are perceived are central to dissemination, it is important to understand the acceptability of condoms by users (Rogers, 2010). It is also important to understand male condom acceptability in the political and historical context of South Africa. Previously established individual-level preference and acceptability factors regarding condoms include size/fit, breakage/slippage texture, pleasure, color, and smell (Beksinska, Smit, & Mantell, 2012; Kalichman et al.; Spruyt et al., 1998). However, personal perceptions regarding condoms and their attributes are still underexplored. In order to fill this gap, we sought to explore a South African community's perceptions of condoms, as well as suggestions for increasing condom use at both an individual and population level, using a multi-method qualitative approach.

METHODS

This study was part of a larger exploratory study designed to assess male and female health clinic attendees' attitudes, perceptions, and experiences surrounding condoms (Baker et al., 2014; Baker et al., 2018). Findings from the present multimethod qualitative study informed the development of a quantitative survey to assess condom preferences. Focus groups were used to explore the gap between how community members and health professionals perceive how condoms should be used (high and consistent) and how the priority population has been measured to use condoms in survey research (moderate and inconsistent) by drawing on their personal experiences and community perceptions. Focus groups were the most appropriate method because the researchers were investigating the complex behavior and motivation for condom use (Morgan & Krueger, 1993). In-depth interviews were also chosen as they can *“provide access to the meanings people attribute to their experiences and social*

worlds,” exploring sensitive topics in an appropriate setting (Legard et al., 2003; Miller & Glassner, 1997, p. 133). The triangulation of focus groups and in-depth interviews increases study validity by enhancing data richness and depth (Lambert & Loiselle, 2008). The present study employed a general inductive approach, which is designed to condense large amounts of qualitative data into larger themes (Thomas, 2006). This approach facilitated our analysis by focusing the data assessment directly on the study objective to understand perceptions of condoms and how to increase their use (Thomas, 2006). Interviews and focus groups were led by the first and second author; both researchers had previous experience moderating and conducting qualitative research, and received additional training on qualitative methods from instructors at Emory University.

Sampling and Study Populations:

Study researchers recruited health clinic attendees and health clinic workers from health clinics in urban settlements in Cape Town, South Africa, in 2014. In 2013, study sites were identified using a criterion sampling technique. Clinics were chosen for study sites based on five criteria: (1) reporting a high volume of patient traffic; (2) reporting provision of tailored HIV prevention and care strategies to Black African men ages 18 and over, Black African youth ages 18 to 29, and Black African and/or Colored adults ages 30 to 59; (3) reporting ability to reach English-speaking participants; (4) having an established relationship with the research team; and (5) having the ability to support our research projects. With these criteria, the City of Cape Town identified four clinics that would be a good fit for study recruitment and provided ethical approval (Baker et al., 2018, 2014). Participants were sexually active clients of community health centers and community health workers aged 18 years. We used snowball and venue-based recruitment approaches. The study team announced study details every hour to health clinic attendees in waiting rooms. Potential participants inquired about study details with health clinic staff, who screened potential participants based on eligibility criteria for referral to study staff. Informed consent was obtained from all participants by study staff.

Focus Group Study Population

Eligibility criteria for FGDs included: (1) self-identification as male and aged 18 years or older, (2) reporting insertive/receptive sex in the past year, (3), reporting ever lifetime condom use during insertive/receptive anal or vaginal sex, (4) English literacy as measured through an ability to read and summarize an informed consent form, and (5) provision of written consent in English. The researchers recruited a total of 40 male participants aged 18 to 55 years for seven FGDs, with each group consisting of four to eight men. FGDs were led in English by the first and second author, a team of one biracial (Asian/White) female and one Black female graduate student, using a semi-structured guide. FGDs ranged in duration from 60 to 120 minutes. The study team also recorded written field notes during FGDs. Out of seven FGDs, five consisted solely of men of Black/African race. Groups were largely homogenous regarding sexual behavior: six groups of men reported sex with majority women and one group reported sex with majority men. There was no substantial difference in the content of conversation between groups based on race or sexual behavior. All groups had similar age ranges. Upon FGD completion, study participants were given 50 ZAR (approximately 5 USD at the time of the study in 2014).

In-depth Interview Study Population

Eligibility criteria for in-depth interview participants were the same as FGD criteria, with an addition of the inclusion of women. Twenty IDIs were conducted in English by the first author using the same semi-structured interview guide with men and women: 17 interviews were with health clinic attendees and 3 interviews were with local community health workers. Interviews ranged in duration from 44 to 90 minutes and field notes were recorded during and after each interview. The age range of participants was 19 – 53 years. Study participants were given 50 ZAR (approximately 5 USD at the time of the study) for participation.

Data Collection

Using a semi-structured moderator guide, FGDs explored individual-level and community-level perceptions of condoms, descriptions of the perfect condom, and suggestions to increase condom use. Questions unique to FGDs included: “*Can you describe the perfect condom?*” and “*Could you talk about your favorite condoms and what you liked about them?*” The semi-structured interview guides differed slightly from FGD guides and explored participants’ experiences with condom use including prior barriers to and facilitators of condom use, community-level perceptions of condoms, condom preferences, and suggestions to increase condom use. An example of a question in the in-depth interview guide included, “*Can you tell me about a situation that convinced you not to use a condom?*” The question “*Let’s say that you’re the Health Minister of South Africa. What would you do to increase condom use?*” was included in both FGDs and IDIs. Audio data were recorded digitally, with written and verbal participant consent.

Data Analysis

The authors analyzed the raw audio data guided by our study objectives, including multiple readings and interpretations of the data to identify themes and categories (Thomas, 2006). We performed data reduction based on instances of theme reoccurrence (Thomas, 2006). Guest, Namey, & McKenna (2016) found that 90% of themes or more can be discovered within 3–6 focus groups and Guest, Bunce, & Johnson (2006) found that approximately 90% of themes can be discovered within 12 interviews. Our dataset of seven focus groups and twenty in-depth interviews comprehensively captures the majority of codes and reaches thematic saturation. We used MAXQDA 10 software to code, manage, and analyze data (Kuckartz, 2007).

We conducted preliminary analysis of the data during the research process, with emerging themes and areas of inquiry guiding subsequent FGDs and IDIs (Thomas, 2006). As it has been found that verbatim transcription of interview data is not always necessary, the first and second author transcribed all focus group discussions (FGDs) and the first author randomly selected twelve in-depth interviews for transcription due to cost and time constraints (Halcomb & Davidson, 2006). The first and second author read all transcripts, and developed a coding framework. The transcripts were then coded by the first and second authors. If new codes emerged from the data, then the authors included these in the codebook. The final codebook consisted of 28 codes which were used to develop categories, and then to conceptualize broader themes in the data (Jain & Ogden, 1999; Thomas, 2006).

Overall, the codebook consisted of inductive codes (e.g., “*Innovations to condom physical traits*” defined as “*Any references to how standard condoms may be improved to create a better condom*”) developed through a basic thematic analysis of participant responses and supplemented by deductive codes (e.g., “*Solutions*,” defined as “*Any suggested solution to increase condom use*.”) informed by existing literature and the study objectives (Ashmore & Henwood, 2015). We compared codes, code intersections, and themes across transcripts to identify relationships and nuances so as to describe the most important and salient themes (Thomas, 2006).

Audio-recordings and transcripts were stored digitally with password-protected files on encrypted, password-protected computers. Consent forms were kept in a locked filing cabinet in a locked room. The Emory University Institutional Review Board (Study No.: IRB IRB00066402) and the Human Sciences Research Council Research Ethics Committee (ID 10350) provided ethical review and clearance to conduct the study. The City of Cape Town granted further permission to conduct research at four City of Cape Town public health clinics- additional information can be found above and elsewhere (Baker et al., 2018). The authors wrote this publication in accordance with the COnsolidated Criteria for REporting Qualitative research (COREQ) checklist, to report important aspects of the study (Tong et al., 2007).

RESULTS

Overall, 40 men participated in FGDs and 9 men and 11 women participated in IDIs. The majority of participants identified as Black/African in both FGDs (82.5%) and IDIs (70), followed by Colored (10% of FGD participants and 20% of IDI participants), then White (2.5% of FGD participants and 5% of IDI participants). At the time of this study, the most commonly available condom was a free, government-provided standard 53-mm width, transparent, and lubricated condom, wrapped in blue packaging with yellow circle inscribed with “Choice” (Ashmore & Henwood, 2015; United Nations Population Fund, 2016; Western Cape Government, 2016). The majority of participants perceived free government condoms as the standard and synonymously interchanged “Choice condoms” with “standard male condoms.”

Participants in all FGDs and IDIs discussed their experiences specifically with Choice condoms despite not being prompted to discuss this or any other condom brand. Nearly all participants discussed perceptions of Choice condoms negatively, specifically commenting that they, their friends, and people in general “*hate Choice*” (M/FGD, F/IDI, M/IDI). Only one participant (a community health worker) stated a preference in favor of Choice condoms although she did not personally use them. Suggestions to increase condom use included increasing the variety of the physical properties and quality of free condoms, and changing the branding of free condoms. Participants perceived government-provided condoms negatively, with themes including “*disgust*” for condom physical properties, concerns with social status associated with free condoms, and performance concerns (M/FGD, F/IDI, M/IDI). Despite reporting a shared concern of negative perceptions towards condom use, a contestation in our findings between FGDs and IDIs existed: FGD participants believed that women did not want to use condoms while IDIs participants reported a belief that men did

not want to use condoms. Solutions to increase condom use included improving the quality and variety of free condoms, and rebranding free condoms. Specific suggestions included condoms be distributed with novel attributes (e.g. more colors, smells/flavors, sizes, and in-demand brands) and that government programs should consider offering all commercial and public sector brands of condoms at no- or low-cost.

Condom attributes that could influence condom use

Participants identified various physical aspects of condoms that influenced how and whether condoms were used. Table 1 features a framework to summarize these characteristics, with representative quotes for each component. The framework includes appearance/design and performance attributes. Appearance attributes included color, opacity, design (visual patterns or design on condom), shape (outline of condom when rolled out, including a reservoir tip), texture (characteristics of condom surface), length (distance of a condom from the tip to the base when it is fully rolled out), width/girth (diameter of the condom opening at the base when in circular position), thickness (distance between the inner layer and the outer layer of the condom), material, lubrication, mode of application (manner in which a condom is placed), and coverage (surface area that is protected by the condom). Performance attributes included smell, taste, feel (perceived tactile sensation of condom), durability (ability of the condom to withstand friction), plasticity (ability of a condom to mold to the wearer's penile dimensions), and multiple-use (ability of a condom to be reused repeatedly).

Negative perceptions of condom physical properties: Perception of “disgust”

Participant-initiated discussion of Choice condoms predominantly regarded physical traits, as summarized by one participant stating that the Choice condom “*smells disgusting and looks disgusting*,” (F/IDI). Many agreed, with several discussing how Choice has “*that overwhelmingly rubber smell about them*,” (F/IDI). Overall, male participants believed that, “*If it's Choice then *whistles* it's a turn off*” (M/FGD). A participant elaborated that “*...it lingers, puts you off... even if you shower*.” (M/FGD). Additionally, participants discussed how “[*Choice*] condoms are boring” (F/IDI), “*too tight*” (F/IDI, M/FGD), and “*thick*” (M/FGD). We further described the participant-elucidated physical attributes of standard condoms and disliked features of condoms in Table 1. As one FGD participant said, “[*Choice condoms*] are useless. They're tight. They smell. I would rather use a brown paper envelope... a bread bag... or a refuse bag” (M/FGD).

Negative Perceptions of Condom Physical Properties: Social Status Concerns

Participants included the brand identity of condoms as a core feature that influenced their decision to use condoms. Generally, participants discussed their dislike of the branding of free condoms: “*The only thing that we don't like from Choice is the brand... we like [other] condoms because the brand is not called Choice*” (M/FGD). For example, participants discussed a condom promoted by a community-based organization, the socially marketed ANOVA Health4Men condom, as “*cooler*” than Choice due to the condom's black color and “*Large*” size clearly stated on the condom wrapper (F/IDI, M/FGD).

Participants also explored brand identity subtopics such as perceptions that the penetrative partner supplying the condom has a lower socio-economic status if they use free condoms:

“If it’s Choice then you’re not getting [sex]” (M/FGD). One interviewee drew on his experiences in which his partner did not want to use Choice condoms due to social status concerns. He discussed how *“If you have that free condom, the girl gonna say ‘You take me cheap? You want to use a free condom to me?’”* (M/FGD). Another interviewee continued the conversation by saying, *“But if you buy those condoms that are the flavored condoms, the girl is, she want to have sex with you with those condoms. But to free condoms, [women] don’t want to have [sex]”* (M/FGD).

Negative Perceptions of Condom Physical Properties: Performance Concerns

Participants had a unanimous mistrust of the integrity and performance of public sector Choice condoms, but not of other store-bought commercial condoms. Commenting on this, one interviewee said, *“You see, [Choice] condoms is not guaranteed, because some have said that it breaks, the Choice, and its quality is not the same as the ones they sell”* (M/FGD). Quality issues surrounded breakage, as one participant stating that, *“Every time I’ve used that Choice condom pack [of 10], every condom snapped”* (M/FGD). One participant described his frustration with using several condoms throughout sexual intercourse as they broke: *“I sometimes think it’s very frustrating going in four or five times and every time you need to change the condom because it keeps on breaking, keeps on breaking.”* (M/FGD). Participants also expressed fear of contracting HIV when using Choice condoms due to breakage: *“I’ve been frightened because [Choice condoms] are not safe and with all my experience, I’ve found that it breaks in the middle and then that is frightening. It interrupts the flow of things”* (M/FGD). Some participants reported developing fatalistic attitudes towards HIV infection while using condoms, believing that the use of Choice condoms would not decrease their HIV risk, as best demonstrated by the following quote, *“STDs increases, AIDS increases, HIV, because they use Choice”* (M/FGD).

Masculinity and gender-relations in condom use: Contestations between methods in perceptions of condom use

Differences in reasons for condomless sex varied between men in FGDs and men and women in IDIs. The all-male FGD participants reported that women suggested not using condoms because condoms interfered with men’s sexual pleasure. FGD participants reported that women could not tell the difference between sex with or without a condom and so condom use did not matter as much to women as it did to men, (e.g. *“[women] won’t feel that condom”* [M/FGD], *“girls like skin-to-skin”* [M/FGD]). FGD participants suggested two reasons for why women did not want to use condoms: (1) alcohol use as *“[women] get drunk”* (M/FGD), and (2) perceived social status concerns (e.g. *“[women] don’t want to use those free condoms...they want those condoms that you have in the shops”* [M/FGD]). IDI participants reported that men did not want to use condoms and women did not use condoms to appease their male sexual partners. According to IDI participants, women engaged in condomless sex because it facilitated men’s sexual pleasure as *“Condoms are too tight for him...so we don’t use condoms”* (F/IDI), enhanced intimacy with sexual partners (e.g. *“Sometimes we love men more than men love us. And then if you love a guy a lot, and your guy says, ‘I don’t want to use a condom’ you just stop cause you don’t want to lose him.”* [F/IDI]), and was the result of violence. Forms of violence included rape (e.g. *“I was high jacked for three days...people high jacked me and raped me, the one guy. And they did this*

tattoo... I was brutally raped 26 times”[F/IDI], stealthing (e.g. *“I cut the tip of the condom before sex”*[M/IDI]) and physical abuse (e.g. *“I beat her because she did not want to use [a condom]”*[M/IDI]).

Increasing Condom Use: Improve the Quality and Variety of Free Condoms

The most commonly suggested improvement for condom programming was to provide an increased variety of different condom types (e.g. colors, shapes, sizes) of free condoms under a new brand. Participants also wanted a noticeable increase in the quality of condoms: *“If a condom of a better quality and made available just to replace Choice, I think that would be a very good idea”* (M/FGD). However, not all participants agreed that just replacing the quality of Choice condoms would suffice. For example, one participant stated that there would have to be a concerted effort to ensure that this new brand of condom is drastically different than and superior to the standard condoms, *“(if) [the government] gives us Choice condoms with different flavors and a different marketing brand- people aren’t going to use them because they’ll put it on and it will still be the same”*(M/FGD). In addition, participants wanted a *“soft”* condom that could facilitate sexual pleasure through a *“more skin to skin feeling”* and varied in lubrication (with some participants suggesting that lubrication be offered separately). More importantly, participants suggested that condoms be more durable and *“something that’s more, that doesn’t break”*(F/IDI). Additional properties of interest suggested by participants are further described in Table 1.

Increasing condom use: Rebrand free condoms

To increase condom use, participants discussed rebranding free condoms. Using thematic analysis, study investigators determined that rebranding condoms included (1) changing the packaging and name of condoms and (2) improving the societal reputation of the brand. Participants suggested that future rebranding efforts could be physical such as changing condom wrappers on an annual basis, or societal such as reframing socioeconomic associations with specific condom brand and decreasing the stigma attached to the use of free public sector condoms. One participant compared condom brands to other commercial name-branded items to emphasize the importance of novel branding in increasing condom use: *“So you can take a Nike jacket or a normal jacket with a Nike sticker on and sell it for the same. It’s exactly the same- Choice condom stigma. Get rid of Choice stigma- get rid of it. Tell people and change every time. Change every year the packaging, or change every two years. Make it interesting. Change it! Don’t keep the bloody same thing.”* (F/IDI). Other branding suggestions included placing condoms in attractive packaging with eye-catching colors, such as gold or silver, and novel shapes (e.g. star or heart). According to participants, wording on these freely available condoms should be culturally relevant, adhere to masculinity norms (e.g. have *“Large”* or *“Extra Large”* size written on it, [M/FGD, M/IDI]) and in local languages. Further, participants suggested that for all brands, *“Condoms should be free! Each and every condom, even if it’s a flavored condom, it should be free”* (M/IDI).

DISCUSSION

This study aimed to explore a community’s perceptions of the reasons for decreasing and persistently low condom use, and to identify a community’s suggestions to increase condom

use. Using qualitative methods, we identified consistent and alarming concerns regarding government-provided, Choice brand condoms in an urban settlement in Cape Town, South Africa. Participants suggested that one of the best methods to increase condom use is to increase the variety of free condoms available by either changing the physical properties of currently available free condoms (described further in Table 1), rebranding government-sponsored condoms, and/or offering other commercial brands of condoms for free. Further, our findings support prior research that multiple complex social and structural barriers prevent condom use, including condom acceptability, facilitation of relationship cohesiveness, hegemonic masculinity, and inequitable gender relations in condom use which included sexual and physical violence.

There is a concern throughout sub-Saharan Africa regarding the quality of condoms. Previous research from sub-Saharan Africa has found that participants held beliefs that condoms may contain worms and were responsible for the transmission of HIV (Siegler et al., 2012). Negative perceptions of government-disseminated Choice condoms have been documented since 2009, suggesting that the government may have been aware of the ongoing dissatisfaction with these condoms (Beksinska et al., 2012; Mulwo et al., 2009). These and other concerns support the importance of condom dissemination programs earning community trust, and continuing to earn that trust by immediately addressing negative condom beliefs and attitudes, continually rebranding condoms, and through the provision of high quality condoms.

Our findings also suggest that there is low acceptability of male condoms among this community. Although acceptability has been extensively measured in female condoms and other behavioral and biomedical prevention strategies, it has not been well studied in male condoms (Ayala et al., 2013; Gallo et al., 2006; Glasier, 2010). Unpacking how condom end-users understand and conceptualize condom appearance and performance attributes, as shown in Table 1, will allow future researchers to develop a Male Condom Acceptability Scale to assess acceptability of male condom attributes such as pleasure, features, and performance. Further, understanding community suggestions of how to increase condom use can orient program-designers and policy-makers to the types of programs and dissemination methods that are acceptable by the community. Clinical trials, such as a recent blinded crossover trial designed to assess pleasure and preference for fitted, thin, and standard condoms, will provide key information by separating brand perceptions from genuine differences in condom performance (Siegler, Rosenthal, Sullivan, Ahlschlager, et al., 2019; Siegler et al., 2018). If different condoms types in blinded settings have different performance, then it indicates a need to change the condom itself; if no difference is detected, the only component to enact change may be to alter condom branding.

Shortly after the completion of data collection for this study, the South African government rebranded “Choice” condoms as “Max” condoms. Health officials cited “condom fatigue” as reason for their rebranding efforts (United Nations Population Fund, 2016; Western Cape Government, 2016). This effort is encouraging, and indicates that health officials were aware of wide-spread community concerns about Choice condoms. Yet it is likely that the rebranding efforts should have begun before such strong, and universal, dislike of Choice condoms had entered popular opinion. There is a need for continual surveillance to identify,

early on, signs of need to rebrand at an earlier date before substantial dislike, as found in this study and others, is established (Ashmore & Henwood, 2015). Despite the introduction of the rebranded Max condoms, condom use is still low in South Africa (Human Sciences Research Council, 2018), indicating that further rebranding may be needed. Continual surveillance can include monitoring and evaluation programs to assess community attitudes towards free government condoms. Continual rebranding can include a steady rotation of condom physical trait and packaging options (Adam et al., 2005).

A previous study suggested that the provision of one type of male condom may be justified; however, our findings suggest the contrary (Weaver et al., 2011). To optimize uptake, governmental condom promotion program should consider a range of options: pretesting alternative names and supportive slogans, and offering innovations in condom physical properties such as colors, thickness, and sizes/shapes. Given the substantial cost-effectiveness of condoms, programs should also consider providing already-popularized condoms (e.g. premium brands) at no-or low-cost. These different program options should be pilot tested and evaluated, and the most successful options should be brought to scale.

We also identified a contestation between in-depth interviews and focus groups in discussing the gender which proposes engaging in condomless sex first. Focus group discussants (all men) suggested that women did not want to use condoms because women were concerned for men's sexual pleasure. In-depth interview participants (both men and women) described that men suggested condomless sex, and women agreed in order to facilitate relationship closeness, promote trust, and enhance their male partner's sexual pleasure. All participants in IDIs unanimously discussed sexual and physical violence related to condom use. In IDIs, women described experiencing rape, kidnapping, "stealth" (nonconsensual condom removal), physical abuse, and having their hair cut when refusing condomless sex. Men in IDIs discussed situations during which they enacted physical and sexual violence on women (stealth, physical abuse, and cutting women's hair) when women refused condomless sex. Men in FGDs did not discuss enacting such extreme violence on women. Although no acts of physical or sexual violence on men were discussed in FGDs, every female IDI participant discussed their own personal experiences (n=11) or witnessing (n=1) of sexual or physical violence on women related to condom use. This finding supports the utility of in-depth interviews elucidating more personal and deeper thoughts about a subject, in comparison to focus groups, in which participants may be too preoccupied by their perceived image to express their most personal thoughts and negative experiences. This finding also suggests that hegemonic masculine norms and gender-based violence continues to persist in South Africa. Accordingly, there is a need to address the role of gender relations in condom use. Masculine norms, which promote high risk sexual behaviors such as condomless sex and the subordination of women, have previously been found to play a key role in the South Africa HIV epidemic (Leddy et al., 2016). Gender-based violence in South Africa is a national crisis and in 2019, President Cyril Ramaphosa addressed the nation to strive towards a violence-free 2030 (South African Government, 2019). For these reasons, it is important to describe suggestions to increase condom use within this societal context.

Masculinity in South Africa is complex, with roots in the intersection of patriarchy, race, class, and historical trauma among other social issues: future interventions must prioritize

the integration of more equitable gender norms in light of this country's historical and political context (Leddy et al., 2016; Hatcher et al., 2014; Dworkin, Hatcher, et al., 2013; Morrell et al., 2013). Thus, while some proposed options to optimize HIV prevention programming may be as simple as indicating a "Large" size on condoms, future directions may be as complicated and multifaceted as changing gender identity through the implementation of gender transformative interventions such as "One Man Can" (Dworkin, Hatcher, et al., 2013; Dworkin, Treves-Kagan, et al., 2013; Jewkes & Morrell, 2010). A systematic review conducted by Dworkin, Treves-Kagan, et al. (2013) found that gender transformative interventions have the potential to increase protective sexual behaviors, modify gender inequitable attitudes, and prevent partner violence. Another systematic review found that of gender-transformative interventions, only 8% incorporated engaged men/boys. These findings demonstrate that interventions must explicitly address gender inequalities to promote women's rights and autonomy and challenge male privilege, power, and positionality in relation to women, especially in the context of condom use. As such, strategies aimed at reducing new HIV infections by promoting condom use should incorporate a gender-transformative approach.

This study has several limitations. The chief limitation is that one focus of our data was on a brand already removed from the marketplace. However, we believe that our findings remain relevant, because it is unlikely that newer branding options will be impervious to future negative public perception. Another limitation is the conduct of focus groups and in-depth interviews in English instead of languages more familiar to South Africans. However, as Cape Town is a predominantly English-speaking city, we do not believe we lost nuances or richness in our data. Due to time and cost constraints, we were able to verbatim transcribe 12 out of 20 available in-depth interviews. Although we did not generate any new codes by the twelfth interview, we may have elucidated a richer and more descriptive understanding of our data if we had transcribed all interviews. A final limitation in our study is the lack of granularity in describing population-level and individual-level suggestions to increase condom use, as our analysis combined these approaches under major themes. As this study focused on condom perceptions and experiences, other HIV prevention strategies such as the rollout of anti-retroviral treatment were not explored.

Novel and recent studies in HIV prevention strategies have since begun focusing on biomedical prevention methods such as topical microbicides and PrEP. In the current era of PrEP, cost per infection averted would be \$12,500 – \$20,000 (Pretorius et al., 2010). In contrast, cost per infection averted using condoms range from \$11 – \$2,000 (Creese et al., 2002; Stover et al., 2017). It may be a wise investment to procure name-brand condoms, even if it comes at a higher cost than government-branded condoms. Government-distributed free condoms are likely to be more accessible, and therefore potentially have more use, than store-bought condoms. Future studies of comparative use of different condom brands should include cost-effectiveness analyses to address this issue.

Conclusion:

This study suggests a substantial rethinking of how condom branding should occur for government-provided condoms. Our findings may be beneficial for governments, private

condom companies, and socially marketed condom companies in the development, adaptation, and/or evaluation of new condoms or condom programs. Further, our findings suggest that programs should proactively address public concerns regarding condoms at both individual- and population-levels. This can be done with ongoing program evaluation, surveillance assessments, and government investment in a wider array of freely available condoms in order to make them more attractive and acceptable to end users, thereby increasing condom use. Existing societal and structural norms such as hegemonic masculinity manifesting through condom use dynamics should also be addressed using gender transformative interventions. Future research should focus on the creation of a Male Condom Acceptability Scale. Condoms are not obsolete. Instead, they continue to serve as an extremely cost-effective HIV and STI prevention strategy that are an integral and relevant facet of a comprehensive HIV prevention program that should be continued to be used as a key part of combination HIV prevention programs.

ACKNOWLEDGMENTS

We would like to thank the Human Sciences Research Council for their guidance through the design and implementation of this study. We would also like to thank Drs. Leickness Simbayi and Allanise Cloete for their invaluable mentorship and guidance during the conduct of this research project. We would also like to thank all of our community partners in South Africa, including Nati and the many community health workers for their tireless dedication towards the eradication of HIV and their support of our research. Further, we would like to thank our participants, community members of Cape Town, for sharing their narratives with us. We would also like to thank Dr. Sara St. George for her guidance on qualitative methods.

Funding

This work was supported by the Emory University Global Health Initiative, National Institute on Drug Abuse (awards #K99DA041494, #R00DA041494), the National Institute on Mental Health (award #R01MH100021), and the Emory University Center for AIDS Research Adelante).

REFERENCES

- Abdool SK, Abdool QK, Preston-Whyte E, & Sankar N (1992). Reasons for lack of condom use among high school students. *South African Medical Journal*, 82(2), 107–110. [PubMed: 1509321]
- Adam BD, Husbands W, Murray J, & Maxwell J (2005). AIDS optimism, condom fatigue, or self-esteem? Explaining unsafe sex among gay and bisexual men. *Journal of Sex Research*, 42(3), 238–248. 10.1080/00224490509552278 [PubMed: 19817037]
- Ajzen I (2012). Martin Fishbein's legacy: The reasoned action approach. *The Annals of the American Academy of Political and Social Science*, 640(1), 11–27. 10.1177/0002716211423363
- Ajzen I, Albarracin D, & Hornik R (2012). Prediction and change of health behavior: Applying the reasoned action approach: Psychology Press 10.4324/9780203937082
- Albarracin D, Johnson BT, Fishbein M, & Muellerleile PA (2001). Theories of reasoned action and planned behavior as models of condom use: a meta-analysis. *Psychological Bulletin*, 127(1), 142–161. 10.1037/0033-2909.127.1.142 [PubMed: 11271752]
- Ashmore J, & Henwood R (2015). Choice or no choice? The need for better branded public sector condoms in South Africa. *Southern African Journal of HIV Medicine*, 16(1). 10.4102/sajhivmed.v16i1.353
- Ayala G, Makofane K, Santos G, Beck J, Do T, Hebert P, Wilson P, Pyun T, & Arreola S (2013). Access to basic HIV-related services and PrEP acceptability among men who have sex with men worldwide: Barriers, facilitators, and implications for combination prevention. *Journal of Sexually Transmitted Diseases*, 2013, 1–11. 10.1155/2013/953123
- Baker H, Fried A, Cloete A, Sigel C, Miranda D, Guillen J, Roach R, & Siegler A (2018). "Give What the People Want": A situational analysis of condom distribution and a feasibility study of user-

- friendly condoms in Cape Town, South Africa. *Journal of the Association of Nurses in AIDS Care*, 29(6), 887–901. 10.1016/j.jana.2018.04.002
- Baker H, Guillen J, Miranda D, Sigel C, & Cloete A (2014, 11 13). Assessing the feasibility of fitted male condoms as a sexual health intervention in Cape Town, South Africa: perspectives from condom education and distribution staff [Poster presentation]. GHI Scholars Symposium, Atlanta, GA, USA <http://www.hsrc.ac.za/en/research-outputs/view/6703>.
- Beksinska ME, Smit JA, & Mantell JE (2012). Progress and challenges to male and female condom use in South Africa. *Journal of Sexual Health*, 9(1), 51–58. 10.1071/sh11011 [PubMed: 22348633]
- Bosompra K (2001). Determinants of condom use intentions of university students in Ghana: An application of the theory of reasoned action. *Social Science & Medicine*, 52(7), 1057–1069. 10.1016/s0277-9536(00)00213-6 [PubMed: 11266049]
- Champion VL, & Skinner CS (2008). The health belief model In Glanz K, Rimer BK, & Viswanath K (Eds.), *Health behavior and health education: Theory, research, and practice* (4th ed.). Jossey-Bass.
- Creese A, Floyd K, Alban A, & Guinness L (2002). Cost-effectiveness of HIV/AIDS interventions in Africa: A systematic review of the evidence. *Lancet*, 359(9318), 1635–1642. 10.1016/s0140-6736(02)08595-1 [PubMed: 12020523]
- Dworkin SL, Hatcher AM, Colvin C, & Peacock D (2013). Impact of a gender-transformative HIV and antiviolenace program on gender ideologies and masculinities in two rural, South African communities. *Men and Masculinities*, 16(2), 181–202. 10.1177/1097184X12469878
- Dworkin SL, Treves-Kagan S, & Lippman SA (2013). Gender-transformative interventions to reduce HIV risks and violence with heterosexually-active men: A review of the global evidence. *AIDS and Behavior*, 17(9), 2845–2863. [PubMed: 23934267]
- Gallo MF, Grimes DA, Lopez LM, & Schulz KF (2006). Nonlatex versus latex male condoms for contraception. *Cochrane Database of Systematic Reviews*, 1 10.1002/14651858.cd003550.pub2
- Glazier A (2010). Acceptability of contraception for men: A review. *Contraception*, 82(5), 453–456. 10.1016/j.contraception.2010.03.016 [PubMed: 20933119]
- Guest G, Bunce A, & Johnson L (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods*, 18(1), 59–82. 10.1177/1525822x05279903
- Guest G, Namey E, & McKenna K (2016). How many focus groups are enough? Building an evidence base for nonprobability sample sizes. *Field Methods*, 29(1), 3–22. 10.1177/1525822x16639015
- Halcomb EJ, & Davidson PM (2006). Is verbatim transcription of interview data always necessary? *Applied Nursing Research*, 19(1), 38–42. 10.1016/j.apnr.2005.06.001 [PubMed: 16455440]
- Hatcher AM, Colvin CJ, Ndlovu N, & Dworkin SL (2014). Intimate partner violence among rural South African men: Alcohol use, sexual decision-making, and partner communication. *Culture, Health & Sexuality*, 16(9), 1023–1039. 10.1080/13691058.2014.924558
- Holmes KK, Levine R, & Weaver M (2004). Effectiveness of condoms in preventing sexually transmitted infections. *Bulletin of the World Health Organization*, 82, 454–461. [PubMed: 15356939]
- Human Sciences Research Council. (2018). *The Fifth South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2017: HIV Impact Assessment Summary Report*. <http://www.hsrc.ac.za/en/media-briefs/saph/sabssm-launch-2018v2>
- Jain A, & Ogden J (1999). General practitioners' experiences of patients' complaints: Qualitative study. *BMJ*, 318(7198), 1596–1599. 10.1136/bmj.318.7198.1596 [PubMed: 10364121]
- Jewkes RK, Dunkle K, Nduna M, & Shai N (2010). Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: A cohort study. *Lancet*, 376(9734), 41–48. 10.1016/s0140-6736(10)60548-x [PubMed: 20557928]
- Jewkes R, & Morrell R (2010). Gender and sexuality: emerging perspectives from the heterosexual epidemic in South Africa and implications for HIV risk and prevention. *Journal of the International AIDS Society*, 13(1). 10.1186/1758-2652-13-6
- Jewkes R, Sikweyiya Y, Morrell R, & Dunkle K (2011). Gender inequitable masculinity and sexual entitlement in rape perpetration South Africa: Findings of a cross-sectional study. *PloS One*, 6(12). 10.1371/journal.pone.0029590

- Kalichman SC, Simbayi LC, Cain D, & Jooste S (2009). Condom failure among men receiving sexually transmissible infection clinic services, Cape Town, South Africa. *Sexual Health*, 6(4), 300–304. 10.1071/sh09046 [PubMed: 19917198]
- Kalichman SC, Simbayi LC, Kaufman M, Cain D, Cherry C, Jooste S, & Mathiti V (2005). Gender attitudes, sexual violence, and HIV/AIDS risks among men and women in Cape Town, South Africa. *Journal of Sex Research*, 42(4), 299–305. 10.1080/00224490509552285 [PubMed: 19827234]
- Kuckartz U (2007). MAXQDA: Qualitative data analysis. <https://maxqda.com>
- Lambert SD, & Loisel CG (2008). Combining individual interviews and focus groups to enhance data richness. *Journal of Advanced Nursing*, 62(2), 228–237. 10.1111/j.1365-2648.2007.04559.x [PubMed: 18394035]
- Leddy A, Chakravarty D, Dladla S, de Bruyn G, & Darbes L (2016). Sexual communication self-efficacy, hegemonic masculine norms and condom use among heterosexual couples in South Africa. *AIDS Care*, 28(2), 228–233. 10.1080/09540121.2015.1080792 [PubMed: 26344386]
- Legard R, Keegan J, & Ward K (2003). In-depth interviews. *Qualitative research practice: A guide for social science students and researchers* In Ritchie J & Lewis J (Eds.), *Qualitative research practice: A guide for social science students and researchers*. SAGE Publications, Inc.
- Manhart LE, & Koutsky LA (2002). Do condoms prevent genital HPV infection, external genital warts, or cervical neoplasia?: A meta-analysis. *Sexually Transmitted Diseases*, 29(11), 725–735. 10.1097/00007435-200211000-00018 [PubMed: 12438912]
- Mash R, Mash B, & De Villiers P (2010). ‘Why don’t you just use a condom?’: Understanding the motivational tensions in the minds of South African women. *African Journal of Primary Health Care and Family Medicine*, 2(1), 1–4. 10.4102/phcfm.v2i1.79
- Miller J, & Glassner B (1997). The “inside” and the “outside”: Finding realities in interviews In Silverman D (Eds.), *Qualitative Research* (pp. 99–112). SAGE Publications, Inc.
- Montano DE, & Kasprzyk D (2015). Theory of reasoned action, theory of planned behavior, and the integrated behavioral model In Glanz K, Rimer BK, & Viswanath K (Eds.), *Health behavior: Theory, research, and practice* (pp. 95–124). Jossey-Bass.
- Morgan D, & Krueger R (1993). *When to use focus groups and why. Successful focus groups: Advancing the state of the art* SAGE Publications, Inc. 10.4135/9781483349008.n1
- Morrell R, Jewkes R, Lindegger G, & Hamlall V (2013). Hegemonic masculinity: Reviewing the gendered analysis of men’s power in South Africa. *South African Review of Sociology*, 44(1), 3–21. 10.1080/21528586.2013.784445
- Mulwo AK, Tomaselli KG, & Dalrymple L (2009). Condom brands, perceptions of condom efficacy and HIV prevention among university students in KwaZulu-Natal, South Africa. *African Journal of AIDS Research*, 8(3), 311–320. 10.2989/ajar.2009.8.3.7.928 [PubMed: 25864546]
- National Department of Health. (2014). *National Department of Health Annual Report 2012/13* [Annual Report 2012/13]. South African Department of Health <https://africacheck.org/wp-content/uploads/2014/02/131016dohrreport.pdf>
- Osuafor GN, Maputle S, Ayiga N, & Mturi AJ (2018). Condom use among married and cohabiting women and its implications for HIV infection in Mahikeng, South Africa. *Journal of Population Research*, 35(1), 41–65. 10.1007/s12546-017-9195-2
- Pallin S, Meekers D, Lupu O, & Longfield K (2013, 11). South Africa: A total market approach for male condoms. <https://www.psi.org/publication/total-market-approach-south-africa/>
- Pettifor AE, Measham DM, Rees HV, & Padian NS (2004). Sexual Power and HIV Risk, South Africa. *Emerging Infectious Diseases*, 10(11), 1996–2004. doi:10.3201/eid1011.040252 [PubMed: 15550214]
- Pretorius C, Stover J, Bollinger L, Bacaër N, & Williams B (2010). Evaluating the cost-effectiveness of pre-exposure prophylaxis (PrEP) and its impact on HIV-1 transmission in South Africa. *PLoS One*, 5(11), e13646 10.1371/journal.pone.0013646 [PubMed: 21079767]
- Randolph ME, Pinkerton SD, Bogart LM, Cecil H, & Abramson PR (2007). Sexual pleasure and condom use. *Archives of Sexual Behavior*, 36(6), 844–848. 10.1007/s10508-007-9213-0 [PubMed: 17909960]

- Reddy P, Meyer-Weitz A, Van Den Borne B, & Kok G (1999). STD-related knowledge, beliefs and attitudes of Xhosa-speaking patients attending STD primary health-care clinics in South Africa. *International Journal of STD & AIDS*, 10(6), 392–400. 10.1177/095646249901000607 [PubMed: 10414882]
- Rogers EM (2010). *Diffusion of innovations*. Simon and Schuster.
- Rosenstock IM (1974). Historical origins of the health belief model. *Health Education Monographs*, 2(4), 328–335. 10.1177/109019817400200403
- Shai NJ, Jewkes R, Nduna M, & Dunkle K (2012). Masculinities and condom use patterns among young rural South Africa men: A cross-sectional baseline survey. *BMC Public Health*, 12(1), 462. 10.1186/1471-2458-12-462 [PubMed: 22892159]
- Shisana O, Rehle T, Simbayi L, Zuma K, Jooste S, Pillay-van-Wyk P, Mbelle N, Van Zyl J, Parker W, Zungu NP, Pezi S, & the SABSSM III Implementation Team. (2009). South African national HIV prevalence incidence behaviour and communication survey 2008: A turning tide among teenagers? Human Sciences Research Council Press <https://www.hscrepress.ac.za/books/south-african-national-hiv-prevalence-incidence-behaviour-and-communication-survey-2008>
- Shisana O, Rehle T, Simbayi LC, Zuma K, Jooste S, Zungu N, Labadarios D, & Onoya D (2014). South African national HIV prevalence, incidence and behaviour survey, 2012. Human Sciences Research Council Press <http://ecommons.hscrepress.ac.za/bitstream/handle/20.500.11910/2490/8162.pdf?sequence=1&isAllowed=y>
- Shisana O, Simbayi L, Rehle T, Zungu N, Zuma K, Ngogo N, Jooste S, Pillay-Van Wyk V, Parker W, Pezi S, Davids A, Nwanyanwu O, Dinh TH, & SABSSM III Implementation Team. (2010). South African national HIV prevalence, incidence, behaviour and communication survey, 2008: The health of our children. Human Sciences Research Council Press.
- Siegler A, Rosenthal E, Sullivan P, Ahlschlager L, Kelley C, Mehta C, Moore RH, Rosenberg ES, & Cecil M (2019). Double-blind, single-center, randomized three-way crossover trial of fitted, thin, and standard condoms for vaginal and anal sex: C-PLEASURE study protocol and baseline data. *JMIR Research Protocols*, 8(4), e12205. 10.2196/12205 [PubMed: 31012862]
- Siegler A, Rosenthal E, Sullivan P, Mehta C, Moore R, Ahlschlager L, Kelley C, Rosenberg ES, & Cecil MP (2019). Levels of clinical condom failure for anal sex: A randomized cross-over trial. *EClinicalMedicine*, 17. 10.1016/j.eclinm.2019.10.012
- Siegler AJ, Boos E, Rosenberg ES, Cecil MP, & Sullivan PS (2018). Validation of an Event-Level, Male Sexual Pleasure Scale (EMSEXpleasure) among condom-using men in the U.S. *Archives of Sexual Behavior*, 47, 1745–1754. 10.1007/s10508-017-1103-5 [PubMed: 29392486]
- Siegler AJ, Mbwapo JK, McCarty FA, & DiClemente RJ (2012). Condoms “contain worms” and “cause HIV” in Tanzania: Negative condom beliefs scale development and implications for HIV prevention. *Social Science & Medicine*, 75(9), 1685–1691. 10.1016/j.socscimed.2012.07.010 [PubMed: 22877934]
- South African Government. (2019, 9 5). President Cyril Ramaphosa: Address to the nation on public and gender-based violence. <https://www.gov.za/speeches/president-cyril-ramaphosa-address-nation-public-and-gender-based-violence-5-sep-2019-0000>
- Spruyt A, Steiner MJ, Joanis C, Glover LH, Piedrahita C, Alvarado G, Ramos R, Maglaya C, & Cordero M (1998). Identifying condom users at risk for breakage and slippage: Findings from three international sites. *American Journal of Public Health*, 88(2), 239–244. 10.2105/ajph.88.2.239 [PubMed: 9491014]
- Stover J, Rosen JE, Carvalho MN, Korenromp EL, Friedman HS, Cogan M, & Deperthes B (2017). The case for investing in the male condom. *PLoS One*, 12(5), e0177108–e0177108. 10.1371/journal.pone.0177108 [PubMed: 28510591]
- Thomas DR (2006). A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation*, 27(2), 237–246. 10.1177/1098214005283748
- Tong A, Sainsbury P, & Craig J (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*, 19(6), 349–357. 10.1093/intqhc/mzm042 [PubMed: 17872937]
- UNAIDS. (2010). Report on the Global AIDS Epidemic [Global report]. UNAIDS https://www.unaids.org/en/resources/documents/2010/20101123_globalreport

- UNAIDS. (2019). Country: South Africa [Country report]. UNAIDS <https://www.unaids.org/en/regionscountries/countries/southafrica>
- United Nations Population Fund. (2016, 6 24). MAX condom launched in South Africa with UNFPA support. UNFPA South Africa. <http://southafrica.unfpa.org/news/max-condom-launched-south-africa-unfpa-support#sthash.q958doDx.dpuf>.
- Volk JE, & Koopman C (2001). Factors associated with condom use in Kenya: A test of the health belief model. *AIDS Education and Prevention*, 13(6), 495–508. 10.1521/aeap.13.6.495.21438 [PubMed: 11791782]
- Western Cape Government. (2016, 7 18). Choice condoms go to the Max. Western Cape Government <https://www.westerncape.gov.za/general-publication/choice-condoms-go-max>.
- Weaver MA, Joanis C, Toroitich-Ruto C, Parker W, Gyamenah NA, Rinaldi A, Omungo Z, & Steiner MJ (2011). The effects of condom choice on self-reported condom use among men in Ghana, Kenya and South Africa: A randomized trial. *Contraception*, 84(3), 291–298. 10.1016/j.contraception.2011.01.010 [PubMed: 21843696]
- Zuma K, Shisana O, Rehle TM, Simbayi LC, Jooste S, Zungu N, Labadarios D, Onoya D, Evans M, & Moyo S (2016). New insights into HIV epidemic in South Africa: Key findings from the National HIV Prevalence, Incidence and Behaviour Survey 2012. *African Journal of AIDS Research*, 15(1), 67–75. 10.2989/16085906.2016.1153491 [PubMed: 27002359]

Table 1

Suggested Innovative Condom Physical Properties and Traits

Trait	Description	Choice condom	Suggested innovations
Color	Condom color(s)/hue(s)	White hue	Increase colors available, e.g. Black, purple, white, flesh, red, green, multi-colored
Opacity	Transparency of condom	Transparent	Increase variety of opacity available, e.g. 100% transparent, 50% transparent, opaque
Design	Visual patterns or designs on condom	None	Increase design options, e.g. <i>"The South African flag... zebra-colored... the big five [lion, leopard, rhinoceros, elephant, and buffalo]"</i> (F/IDI)
Shape	The outline of the entire condom when rolled out	Standard parallel sided straight condom with tip	Allow shape to mold to wearer's penile dimensions better, e.g. <i>"If it goes with the shape of your penis, it's a good thing."</i> (M/FGD)
Texture	The consistency of the condom surface	Smooth surface: <i>"Too smooth"</i> (M/FGD)	Increase texture of condoms, e.g. <i>"Bumps on the upper head"</i> (M/FGD)
Length	The distance of a condom from the tip to the base when it is fully rolled out	178 mm, which did not fit all men adequately	Increase options and range of condom length, e.g. 80–240 mm
Width/Girth	The diameter of the condom at the base	52 mm, which did not fit all men adequately	Increase options and range of condom width/girth, e.g. 41–69 mm
Thickness	The distance between the inner layer and the outer layer of the condom	0.06 – 0.08 mm, which is considered to be too thick: <i>"More thicker"</i> (M/FGD)	Increase options for latex thickness as some participants wanted a thicker condom to prevent STI transmission while others wanted a thinner latex, e.g. <i>"Definitely the thickness of the latex."</i> (F/IDI)
Smell	The odor of the condom	<i>"Bad"</i> odor (M/FGD); <i>"A little bit oily"</i> (M/FGD) <i>"Disgusting"</i> (F/IDI) <i>"Stinks!"</i> (M/FGD)	Increase the variety of smells available, e.g. <i>"A nice smell.flowers... chocolate"</i> (M/FGD) <i>"Chocolate cake"</i> (M/FGD) <i>"Strawberry"</i> (M/FGD)
Taste	The flavor of the condom	Unflavored	Increase the variety of condom flavors/tastes available, e.g. <i>"Strawberry, banana, grapes"</i> (M/FGD)
"Feel"	The perceived tactile sensation of condom by both users	Not enough "skin to skin" feeling	Increase facilitation of the tactile sensation of condomless sex, e.g. <i>"More skin to skin feeling with your partner."</i> (M/FGD) <i>"They must make it so it's part of the skin."</i> (F/IDI)
Durability	The ability of the condom to withstand damage	Easily breakable: <i>"Choice ones are easy to break."</i> (M/FGD)	Increase durability of condoms, e.g. <i>"[Condoms] must have a guarantee that it will never break!"</i> (M/FGD) <i>"I think the does not break will increase will increase the fun. [A condom breaking] is the worst."</i> (M/FGD)
Material composition	The matter from which the condom is made	Latex, but participants perceive it as <i>"Plastic"</i> (M/FGD)	Manufacture condoms from a more <i>"A natural material"</i> (M/FGD)
Lubrication	The presence and degree to which a condom has a friction minimizing substance	Lubrication is not appropriate for all users, some comments that condoms are <i>"It's dry, it's dry"</i> (M/FGD) while others believe <i>"I don't like the woman to be wet before you make her wet."</i> (M/FGD)	Allow for user to choose lubrication level, e.g. More lubrication as, <i>"Must be lubricated.doesn't hurt you."</i> (F/IDI) <i>"Lubrication can change the condom completely."</i> (F/IDI)
Plasticity	The ability of a condom to mould to the wearer's penile dimensions	Condoms do not mould to penile dimensions, e.g. <i>"His dick is too big. Like seriously. It's too big. So like condoms are tight on him."</i> (F/IDI)	Increase plasticity of condoms for a better fit, e.g. <i>"[Condoms] must also be able to fit the man."</i> (M/FGD)
Mode of application	The manner in which a condom is placed	Roll down, which is not enough options	Increase options for different modes of application e.g. <i>"Sshhh [makes noise of spray can and motions spraying groin region] you just put on like that."</i> (M/FGD)

Trait	Description	Choice condom	Suggested innovations
Coverage	The surface area of the genitalia that is protected by the condom	From base to head, which is not enough coverage	Provide a more full coverage condom, e.g. <i>“Ideally it will cover my balls.”</i> (M/FGD) <i>“So, it’s better that you get a condom that will cover you when you get, when you do the frictions”</i> (M/FGD)
Multiple-use	The ability of a condom to be reused repeatedly	One-time use, which is not enough usage	Increase usage of each condom, e.g. <i>“Then like each and every time just use that condom you wash it... when you want to use it, just put that special oil!”</i> (M/FGD)