


Self-determination and gender–power relations as predictors of condom use self-efficacy among South African women

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Abstract

This article identifies correlates of condom use self-efficacy using concepts from self-determination theory and gender–power measures. A cross-section of Xhosa-speaking women ($n=238$) from Eastern Cape, South Africa, was used to conduct bivariate correlations and multivariate linear regression analyses. Gender equality beliefs and HIV knowledge were positively associated with condom use self-efficacy generally and in risky situations. Condom use self-efficacy generally was also positively associated with power balance attitudes, negative beliefs about intimate partner violence, and positive growth perspective, while the association with hopeless personal perspective was negative. Surprisingly, lack of social support was positively associated with condom use self-efficacy in risky situations. The predictors of condom use self-efficacy identified in this study that may serve as change objectives for future sexual health promotion interventions.

Keywords

condom use self-efficacy, gender–power, self-determination, South Africa, young women

Introduction

Studies show a high awareness of HIV/AIDS being a deadly disease among the South African population. However, the same population also shows a lack of accurate knowledge about sexual transmission and ability to reject misconceptions about the infection (Shisana et al., 2014). Also, consistent condom use remains sub-optimal, particularly for women (25.2%) (Shisana et al., 2014; Smith et al., 2014). While many South African individuals report being in stable relationships, many (mostly men) also report being in extra sexual partnerships (Kalichman et al., 2013; Shisana et al., 2014; Steffenson et al., 2011). Although condom use with extra partners may prevent infection, the risk of primary partners remains heightened due to persistent inconsistent condom use in all types of relationships (Darbes et al., 2014; Kalichman et al., 2013; Maticka-Tyndale, 2012).

Studies among South African and African American women show that condom use self-efficacy is a particularly important predictor of actual condom use; low self-efficacy is associated with increased unprotected sexual acts (Cain et al., 2013; Crosby et al., 2013; Jama Shai

et al., 2010; Onoya et al., 2011; Peltzer and Makusa, 2014). Self-efficacy is important for acting not only on rational decision-making regarding safe sexual practices but also in risky situations such as substance use or when there are trust issues. Due to its demonstrated importance, self-efficacy has been a target of various health education and sexual risk-reduction interventions (Black et al., 2014; Davis et al., 2014). This study focuses on the role of condom use self-efficacy in decision-making by Black women in rural South African communities. This is relevant because of the overall HIV prevalence rate at 13.3 percent in 2012 and young South African women being disproportionately affected by HIV/AIDS (Jewkes et al., 2010; Shisana et al., 2010, 2014; Zembe et al., 2012).

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As a theoretical construct, self-efficacy is part of social cognitive theory (Bandura, 1982, 1997; Bandura and McClelland, 1977) and is defined as holding the belief that one is able to accomplish tasks and goals set before them in different circumstances. Efficacious individuals welcome challenging tasks as motivating factors, while individuals with inefficacious beliefs dwell on their deficiencies when faced with difficulty. Therefore, in order for an individual to successfully negotiate with a partner for condom use, they have to believe in their own ability to use a condom effectively even in complex situations (Black et al., 2011).

Persistently low levels of condom use (approximately 36% of the South Africans used condoms at last time sex in 2012; Shisana et al., 2014) suggest that significant predictors such as self-efficacy in sexual risk behavior research need to be studied in depth to explain broader social and emotional issues associated with these low levels (Jama Shai et al., 2010; Volkmann et al., 2014). Social issues refer to gender relations and cultural norms regarding monogamy and concurrency, while emotional issues refer to relationship characteristics such as partner choice, length of relationship, trust and definition of love (Bandali, 2014). In our study, self-determination theory (SDT; Ryan and Deci, 2000) and gender–power constructs are examined as possible frameworks that can provide insight into these issues.

SDT examines motivation and behavior of human beings through the study of individual, social, and environmental factors that affect the impetus to act in a particular way in given situations and how in turn personality and psychological development are affected (Ryan and Deci, 2000). Motivation differentiates between individuals who act from a sense of personal commitment toward certain behaviors and those whose behavior is driven by fear of pressure from external sources.

Self-determination is premised on three psychological needs, namely, *competence*, *autonomy*, and *relatedness*, which are the focus of this study. We investigate to what extent these needs predict self-efficacy to use condoms. Self-efficacy and SDT as constructs are well aligned. The former measures the presence of motivation for behavior change, whereas the latter measures the drivers and inhibitors of that motivation (quality), done through investigating whether the three psychological needs are met (Patrick and Williams, 2012). In terms of the three psychological needs, *autonomy* is often described as a fundamental human need; it provides an environment that enables freedom, agency, initiative, and control over decision-making without any burden from external pressures (Ryan and Deci, 2006). Affect and coping measures have been shown to be indicators of autonomy in individuals (Ratelle et al., 2013; Van Gundy, 2002). Less autonomous individuals tend to manage internal and

external stress demands poorly, have an increased risk of depression, and thus feel less satisfied with their lives, while autonomy promotes less maladaptive coping (MC) and increased mental wellbeing (Knee and Zuckerman, 1998; Olesen et al., 2015; Reis et al., 2000; Van Gundy, 2002). Autonomy in sexual contexts provides women the opportunity to protect their own health, while oppressive cultural norms diminish that right (Knee and Neighbors, 2002; Sanders-Phillips, 2002). The *autonomy* need assists us in understanding how condom use self-efficacy can be sustained through measuring how autonomous individuals feel in their personal and social environment. Autonomy has also been shown to be an important predictor of health-promoting behaviors as it determines whether decisions and beliefs are internalized and therefore will be sustained in the long term (Deci and Ryan, 2008; Ng et al., 2012).

Competence is another basic human need, which involves feeling effective in ongoing interactions with one's external environment; it also forms the foundation for self-esteem and self-confidence (Bartholomew et al., 2011; Sheldon et al., 1996). Competence is also linked to one's control of motivations, where an individual is able to plan and strategize on the different routes needed to progress toward a goal. When individuals have ineffective coping strategies or problem-solving deficits (hopelessness), they are likely to feel less competent (Robinson and Snipes, 2009; Yağmur and Oltuluoğlu, 2012). The *competence* need has also been defined as very similar to self-efficacy. However, competence refers to a psychological need being met that has more to do with general feelings about self and working efficiently or having a sense of motivation, while self-efficacy is more about the ability to attain a specific goal (Bandura, 1997; Patrick et al., 2007; Sheldon et al., 1996). Therefore, competence can be viewed as a determinant of self-efficacy, for example, "I feel generally self-confident therefore I can achieve goal-A." It is important to understand how these two concepts are associated because both have been linked to psychological health and health-promoting behaviors in life situations (Ng et al., 2012; Patrick et al., 2007).

Relatedness can be defined as feeling connected to a partner, feeling secure, having a sense of belonging with others, in the social environment. If the need of *relatedness* is satisfied, a person will have a sense of control in interpersonal spaces including sexual relationships; therefore, condom use self-efficacy in this context will be increased. When these three needs are met, they yield increased motivation, wellbeing, and mental health, and thus, women may feel more efficacious to protect their physical health (Bartholomew et al., 2011; Milyavskaya and Koestner, 2011; Patrick et al., 2007; Weinstein and Ryan, 2011).

We also considered the gender–power differentials and their link to the wellbeing of women in South African rural communities. The aim was to understand the social context in which sexual relationships occur, specifically those that might be associated with women’s estimates of personal efficacy to use a condom. In terms of the South African constitution, men and women have equal and inalienable human rights (Bill of rights of South Africa; Act 108 of Certification of the Constitution of the Republic of South Africa, 1996). This act has seen the women’s cause advanced to such an extent that they have visible representation in government institutions (Kehler, 2001). Furthermore, women have reproductive rights; young girls are also able to participate in school as boys do (Walker, 2013). However, the government is yet to make advances in the redistribution of resources and power such that the woman’s position is more stable even in local settings (Walker, 2013).

The insecure social position of women is clearly evident in rural communities where patriarchy is dominant partly due to the government’s attempt to integrate tradition into today’s progressive society (Albertyn, 2011; Walker, 2013). As such, women find themselves in a situation where the land’s constitution grants them rights and traditional law undermines those rights (Albertyn, 2011). Because the constitution does not clearly address the norms and attitudes in society about gender inequality, the implications of these gender–power imbalances extend to sexual relationships. Women are often unable to negotiate for safe sexual behavior in relationships, as they are afraid to diverge from socially acceptable norms. Rural men, on the other hand, bemoan the time where their male authority in the community and households was uncontested (Albertyn, 2011; Onyejekwe, 2013). The perceived insecurity of man’s social position leads to retaliation and assertion of power through gender abuse and violence putting women in adverse health conditions (Dworkin et al., 2012; Morrell et al., 2012; Onyejekwe, 2013).

Previous research focused on the link between gender-based imbalances, intimate partner violence, and the ability to negotiate for condom use. These studies investigated how these factors affect the frequency of condom use (Bryan et al., 1997; DePadilla et al., 2011; Gutiérrez et al., 2000; Soet et al., 1999). This study considered variables measuring women’s attitudes, and values and beliefs on gender issues including the experience of intimate partner violence (gender–power constructs).

We hypothesized that constructs drawn from the three SDT psychological needs and gender–power concepts can contribute to the explanation of condom use self-efficacy among rural women and thus provide insight into how women’s confidence to exert more persistent efforts on safer sexual behavior can be promoted in future intervention programs.

Methods

Study setting and sampling

Baseline data from a randomized controlled trial were used for this study. From September 2012 to March 2013, participants were recruited from the OR Tambo and Amathole district municipalities of the Eastern Cape Province, South Africa; both districts lie along the eastern seaboard of the Indian Ocean. Women were recruited through a local tribal authority and development organization, the network of Eastern Cape Royal Chief’s wives (Imbumba Yoomama Bakomkhulu (IYA)). IYA members recruited local women for the study through using the word of mouth in community structures. Community research assistants (CRAs) then contacted those women via telephone for screening and to set baseline assessment interview appointments. Participants were eligible if they were between 18 and 35 years of age and had low levels of education—below the South African Senior certificate, meaning that they had not completed schooling. However, participants needed to be able to read and/or write isiXhosa. They also needed to be unemployed at entry of study, to not be pregnant, and to be permanently based in the sampled communities. The selection criteria were established from the needs analysis conducted prior to baseline data collection, where the profile of women exposed to adverse health conditions including the risk to HIV/AIDS was developed.

A total of 270 eligible women were sampled, and of those, 238 completed the questionnaire. The remainder did not meet the inclusion criteria due to one of the following reasons: possible relocation plans, reporting of mental illness, not attending appointments for the baseline assessment, and refusing participation upon understanding the study requirements (i.e. time commitment).

Procedure

Data were collected by six trained isiXhosa-speaking, female CRAs. The CRAs were familiarized with the objectives of the study, trained on recruiting participants, obtaining informed consent, and administering the questionnaire. All questionnaires were administered in isiXhosa through face-to-face interviews. The assessments were carried out at the local tribal authority homesteads because these were centrally located and accessible to all participants. Prior to conducting interviews, participants were verbally informed about the content of the study, procedures, and confidentiality. At the end of the information session, written consent was obtained from each participant. Ethical approval was obtained from the Walter Sisulu University (WSU) Ethics and Bioethics Committee.

Measures and scale construction

The development of the questionnaire was based on literature searches, a needs assessment, and theoretical constructs.

The primary questionnaire was developed in English and then translated to isiXhosa for comprehension, cultural applicability, and language appropriateness, and subsequently back-translated to English to check for accuracy, and finally pretested on Xhosa-speaking women.

Socio-demographic variables

Socio-demographic variables included age, highest grade passed (1=no schooling to primary schooling, 2=secondary schooling, and 3=post-matric), marital status (1=single, 2=married, 3=divorced or separated, and 4=widowed), employment status, and household income in South African Rands (salary, social grants, other sources of income).

Sexual behavior

The sexual behavior question assessed whether a person had a sexual primary partner and a secondary/casual partner with one item (0=no, 1=yes). One open-ended question asked about the number of men a participant had sex with in a 3-month time period.

For the measures below, confirmatory factor analysis was conducted to check whether items indeed grouped together as would be expected (which was generally the case, although in some instances not all items within a group made it to the scale). Inter-item correlations and principal axis factor analysis and direct oblimin rotations were used for extracting factors. Items with factor loadings of .40 or higher were grouped and subjected to reliability analysis. Groups of items with a Cronbach's alpha (α) score of .60 or higher were averaged into a single construct and labeled to reflect the underlying variable that was measured. All measures were based on Likert-type items, unless otherwise indicated. Items and variables were recoded such that higher scores reflect a stronger presence of the pertinent variable.

Condom use self-efficacy

Condom use self-efficacy was measured with 21 items with answering options (1=strongly agree, 4=strongly disagree) (Brafford and Beck, 1991). After recoding the scores such that higher scores reflect more self-efficacy, factor analysis suggested two sub-scales, which were labeled as condom use self-efficacy generally and condom use self-efficacy in risky situations. *Condom use self-efficacy generally* was the primary outcome variable for this study and was measured with 13 items (e.g. I am confident that I have safer sex and satisfy my partner"; "I am certain that I know how to use a condom correctly"; $\alpha=.77$). *Condom use self-efficacy in risky situations* was the secondary outcome variable and was measured with eight items (e.g. How confident are you that you would use a condom when ... "you or your partner have been using alcohol"; "when you want your

partner to know you are committed to your relationship"; $\alpha=.82$).

Three SDT psychological needs

We operationalized the three SDT psychological needs (*autonomy, competence, and relatedness*) using measures that we theoretically and conceptually linked to each of the needs, respectively. *Autonomy* was measured with these indicators: affect (perceived stress, ways of coping, and depression), satisfaction with life, and personal growth initiative. *Competence* was measured with self-esteem, hopelessness, and HIV knowledge, and *relatedness* was measured with interpersonal support and partner disapproval to use a condom.

Autonomy measures. Perceived stress was measured with nine items with response options from 0=never to 4=very often (Cohen et al., 1983). Factor analysis resulted in one scale with adequate internal consistency: the *ability to control stress* (ACS), which was measured with five items, with questions such as, "In the last month, how often have you felt things were going your way" ($\alpha=.74$).

Ways of coping measured how participants deal with stressful encounters (Folkman and Lazarus, 1980). The questions asked, "If you were faced or have faced a difficult situation, family problem, or medical treatment, please tell us how you dealt with that problem" and a scale of 22 items was used with scoring options (0=not used, 3=used a great deal). Factor analysis suggested two sub-scales: avoidance coping (AC) and MC. AC was assessed with statements such as "I hoped a miracle would happen" ($\alpha=.76$). MC was measured with questions such as "I tried to make myself feel better by eating, drinking, smoking, using drugs or medication etc." ($\alpha=.80$).

Depression was measured with a 21-item scale from Beck's Depression Inventory with response options (0=no feelings of depression, 3=strong feelings of depression) (Beck and Steer, 1984). Factor analysis suggested a one-factor solution that measured the participant's feelings of depression, presence of depressive symptoms (PDS; $\alpha=.84$).

Satisfaction with life was measured with a 5-item scale with response options (1=strongly agree, 7=strongly disagree) (Diener et al., 1985). After recoding, factor analysis showed a one-factor solution. A sample item was "So far I have gotten the important things I want in life"; $\alpha=.72$).

Personal growth initiative was measured with a 7-item scale with scoring options 0=definitely disagree, 7=definitely agree (Robitschek, 1998). Factor analysis showed a one-factor solution, personal growth perspective (PGP; e.g. "I take charge of my life"; $\alpha=.77$).

Competence measures. Self-esteem was assessed with the Rosenberg 10-item scale with 4-point response options

(0 = *strongly agree*, 3 = *strongly disagree*; Rosenberg, 1965). Following recoding, factor analysis showed a two-factor solution, positive and negative self-esteem, respectively. *Positive self-esteem* was measured with five items (e.g. “I feel I have a number of good qualities”; $\alpha = .66$). *Negative self-esteem* was measured with four items (e.g. “All in all, I am inclined to feel that I am a failure”; $\alpha = .64$).

Beck’s Hopelessness scale was assessed with a 20-item scale with response options (0 = *true*, 1 = *false*) (Beck et al., 1974). Factor analysis showed two factor dimensions, hopeless future perspective (HFP) and hopeless personal perspective (HPP). *HFP* was measured with 10 items (e.g. “I might as well give up because there’s nothing I can do to make things better for myself” ($\alpha = .79$). A *HPP* factor was constructed that had seven items (e.g. “My past experiences have prepared me well for my future”; $\alpha = .77$).

Knowledge about the spread and transmission of HIV/AIDS and sexually transmitted infections (STIs) was measured with six true–false questions, for example, “If a woman uses birth control pills it lowers her risk of transmitting HIV to her male partners” (0 = *false*, 1 = *true*; $\alpha = .60$).

Relatedness measures. Interpersonal support was measured with a 28-item scale with scoring options (0 = *definitely false*, *definitely true* = 3) (Brookings and Bolton, 1988). Factor analysis showed a two-factor solution, *presence of support* (POS; e.g. “There are several people I trust to help me solve my problems”; $\alpha = .74$) and *lack of support* (LOS; e.g. “If I were sick I could easily find someone to help me with my daily activities”; $\alpha = .72$).

Partner disapproval on condom use was assessed with four items such as “If I were to suggest using a condom to a partner I would feel afraid he would reject me” with a scale of (0 = *strongly agree to 4 = strongly disagree*; $\alpha = .81$).

Gender–power and intimate partner violence measures

Gender egalitarian roles were measured with a 4-item scale with options (1 = *strongly agree*, 5 = *strongly disagree*). Items measured gender equality beliefs (GEB; e.g. “If both of us are working, the husband should do the same amount of chores as the wife”; $\alpha = .60$).

Gender–power attitudes were assessed with a 7-item scale with response options (1 = *strongly agree*, 5 = *strongly disagree*). Items measured power balance attitudes (PBA; e.g. “No one should have more power than the other in a relationship”; $\alpha = .70$).

Beliefs about intimate partner violence (BIPV) were assessed with a 4-item scale with response options (1 = *strongly agree*, 5 = *strongly disagree*). Items measured BIPV (e.g. “There are times when a woman deserves to be beaten”; $\alpha = .60$).

Exposure to intimate partner violence was assessed with a 5-item scale with response options (0 = *never*, 3 = *always*). The scale was assessed with questions such as, “Does your partner ever yell or curse you?” ($\alpha = .80$). All of the above gender scales were obtained from the Compendium of Gender Scales (Nanda, 2011).

Data analysis

Frequencies and mean scores were used to describe categorical and continuous variables. Bivariate correlation analysis was used to assess the univariate associations between the study measures. Measures that showed significant univariate associations with the primary and secondary outcome measures on condom use were included in multivariate linear regression models to determine their unique contributions in the prediction of the respective outcome measure. SPSS version 20 (SPSS Inc., Chicago, IL) was used for analysis.

Results

Demographic profile of participants

A total of 238 women were interviewed at baseline of the study. The mean age of those women was 25.9 years (standard deviation (SD) = 4.37) with the youngest being 18 years and the oldest being 35 years. All participants were Xhosa speaking. Other personal characteristics are included in Table 1.

Sexual behaviors

About 66 percent of the participants in the study reported having a partner (main or casual). The majority (87.4%) of participants reported having sex with one partner in 3 months, while 9.7 percent reported having more than one sexual partner in the same 3-month period. A minority of the participants (39.4%) reported using condoms at last sex and 11.2 percent reported ever having had an STI. A majority of the participants (73.4%) reported having sexual partners who were 35 years and below and 12.7 percent reported having partners who were 36 years and above.

Summary of SDT psychological needs and gender–power variables

Regarding the SDT psychological needs, participants reported high positive self-esteem ($M = 2.20$, $SD = 0.57$) but also moderate levels of negative self-esteem ($M = 1.75$, $SD = 0.62$). Participants reported low levels of the PDS measure ($M = 0.73$, $SD = 0.48$). For the ACS, participants scored low ($M = 0.47$, $SD = 0.81$).

Participants showed high hopelessness scores in both the HFP ($M = 0.39$, $SD = 0.27$) and the HPP ($M = 0.14$, $SD = 0.17$).

Table 1. Socio-demographic profile of sampled women living in rural communities in the Eastern Cape.

Variables	Frequency	Percentage (%)
Education level		
No formal schooling	1 (0.4)	0.5
Primary school	8 (3.4)	3.7
Secondary school	164 (68.9)	76.3
Other	42 (17.6)	19.5
Marital status		
Married	25 (10.5)	10.6
Not married	208 (88.2)	89.4
Have one or more children (yes)	77 (32.4)	32.4
Have one or more children (no)	161 (67.7)	67.7
Employment status		
More than 5 days	0 (0)	0
Less than 5 days	5 (2.1)	2.1
Social grant	51 (21.4)	21.8
Stay at home	17 (7.1)	7.3
Ill/disabled	1 (0.4)	0.4
Unemployed	158 (67.2)	68.4
Partner's employment status		
More than 5 days	15 (6.7)	7.0
Less than 5 days	8 (3.4)	3.7
Social grant	15 (6.3)	7.0
Stay at home	22 (9.2)	10.3
Ill/disabled	6 (2.5)	2.8
Unemployed	148 (62.2)	69.1
Household income		
No income	52 (21.8)	22.5
Under 10,000	168 (71.5)	73.6
Over 10,000	12 (3.7)	3.8

In both AC ($M=1.24$, $SD=0.54$) and MC ($M=1.19$, $SD=0.52$), participants reported moderate levels.

LOS showed moderate levels ($M=1.35$, $SD=0.62$) while POS showed high levels ($M=2.31$, $SD=0.44$) of perceived support. Participants reported moderate levels on the PGP ($M=2.23$, $SD=0.89$).

Only 10 percent of the participants reported lacking HIV knowledge or information about the different ways a virus can be transmitted between heterosexual individuals. For the gender–power constructs, participants reported high levels of GEB ($M=2.77$, $SD=1.98$) and PBA ($M=3.37$, $SD=0.59$). Only 28.4 percent of the participants reported that they never experienced intimate partner violence.

Correlates of condom use self-efficacy

Table 2 presents inter-item correlations, mean, and SDs for all study measures. The variables that had a positive bivariate correlation with condom use self-efficacy generally were PGP, HIV knowledge, attitude on power balance, BIPV, and POS. HFP, HPP, and GEB were negatively correlated with condom use self-efficacy generally.

Bivariate correlation analysis for condom use self-efficacy in risky situations showed positive associations with AC, LOS, and HIV/STI knowledge, while the GEB measure was negatively correlated with condom use self-efficacy in risky situations.

Multivariate model of condom use self-efficacy generally

A linear regression analysis was conducted using significant bivariate correlated items of SDT psychological needs and gender–power variables in association with condom use self-efficacy generally. The results are outlined in Table 3 with standardized regression coefficients (betas), t -statistic and p values. The significant regression model, $F(9, 224)=10.03$, $p<.01$, showed unique positive associations with condom use self-efficacy generally for PBA, HIV knowledge, and GEB, PGP, and BIPV. A unique contribution was also found for HPP, which was inversely related to condom use self-efficacy generally. Tests of multicollinearity were conducted through the calculation of variance inflation factor (VIF). No problems were observed as all the variables had a VIF score below 2 (Myers, 1990). The full model explained nearly one-third of the variance in condom use self-efficacy generally ($R^2=.30$).

A linear regression analysis with condom use self-efficacy in risky situations as an outcome measure gave a significant regression model, $F(6, 220)=6.11$, $p<.01$, with unique positive associations for LOS and HIV knowledge (see Table 4). GEB also showed a unique contribution to condom use self-efficacy in risky situations, but the association was an inverse one. No problems with regard to multicollinearity were observed as all the variable values had a VIF score below 2 (Myers, 1990). The full model explained about 13 percent of the variance in self-efficacy for condom use in risky situations ($R^2=.13$).

Discussion

This study presents correlates of condom use self-efficacy generally and in risky situations for women who live in rural African communities. Our findings suggest that SDT psychological needs and gender–power constructs are predictors of condom use self-efficacy that may serve as change objectives for innovative sexual health promotion interventions.

This study included 18- to 24-year-old women who are considered an important cohort, as they are highly susceptible to HIV infection. A significant proportion of participants reported that they had more than one sexual partner and ever had an STI, while 60 percent reported inconsistent condom use. Our findings on sexual behavior and condom use like other studies conducted among women confirm their vulnerable position in sexual and reproductive health (Onoya et al., 2011; Shisana et al., 2014; Zembe et al., 2012).

Table 2. Correlations of condom use self-efficacy with self-determination theory psychological needs and gender–power constructs.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1. CUSE																							
2. CUSER	.19 ^b	–																					
3. PSE	-.05	.12	–																				
4. NSE	.06	.07	-.19 ^b	–																			
5. LSC	-.02	-.05	-.22 ^b	-.21 ^b	–																		
6. ACS	.15 ^a	.12	.20 ^b	.14 ^a	.01	–																	
7. HFP	-.15 ^a	-.06	-.13 ^a	-.38 ^b	.35 ^b	-.14 ^a	–																
8. HPP	-.16 ^a	-.04	-.15 ^a	-.05	.08	-.07	.11	–															
9. PDS	-.09	.02	-.19 ^b	-.22 ^b	.36 ^b	-.13 ^a	.32 ^b	.27 ^b	–														
10. AC	.09	.13 ^a	-.04	.08	.07	.07	-.03	.01	.24 ^b	–													
11. MC	.12	.12	-.02	.04	.07	.19 ^b	.05	-.06	.18 ^b	.56 ^b	–												
12. SWL	.09	.11	.14 ^b	.02	-.14 ^a	.19 ^b	-.20 ^b	-.07	-.03	.15 ^a	.18 ^b	–											
13. PGP	.26 ^b	.12	.22 ^b	.02	-.08	.29 ^b	-.24 ^b	-.10	-.09	.11	.19 ^b	.38 ^b	–										
14. LOS	-.01	.18 ^b	.09	.29 ^b	-.28 ^b	.08	-.47 ^b	.00	-.17 ^a	.13 ^a	-.02	.08	-.16 ^a	–									
15. PDCU	.11	-.02	-.08	.08	.22 ^b	.05	.21 ^b	.08	.16 ^a	.04	.01	.07	.04	-.16 ^a	–								
16. HIV knowledge	.29 ^b	.22 ^b	.12	.01	.02	-.03	-.11	-.13 ^a	-.07	.03	.08	.13 ^a	.15 ^a	.06	-.06	–							
17. HIVK_other factors	-.09	.10	-.05	-.06	.03	.06	.16 ^a	.06	.04	-.05	.01	.00	-.08	-.15 ^a	.09	-.03	–						
18. POS	.16 ^a	-.02	.11	-.03	.11	-.19 ^b	-.07	-.08	-.27 ^b	.02	.09	.07	.21 ^b	-.10	-.11	.12	.01	–					
19. BGE	.18 ^b	-.18 ^b	-.00	-.14 ^a	-.07	.01	-.21 ^b	-.00	-.00	.06	-.06	-.00	-.03	-.09	.09	.00	-.16 ^a	-.14 ^a	–				
20. PBA	.35 ^b	.04	.10	-.06	.11	.13 ^a	-.03	-.06	-.09	.08	.05	.09	.22 ^b	-.05	.03	.17 ^a	-.16 ^a	.22 ^b	.09	–			
21. IPV	-.09	.11	.06	-.02	.13 ^a	-.06	.16 ^a	.11	.08	-.01	-.04	-.07	-.17 ^a	-.04	.04	.07	.24 ^b	.14 ^a	-.12	-.18 ^b	–		
22. BIPV	.23 ^b	-.07	.05	.12	-.13 ^a	-.01	.24 ^b	-.01	-.06	-.05	.05	.04	.07	.18 ^b	-.03	.03	-.16 ^b	-.03	.26 ^b	.05	-.00	–	
Mean	0E-7	0E-7	2.20	1.75	1.71	0.47	0.39	0.14	0.73	1.24	1.19	3.83	2.23	1.35	2.16	2.00	0.47	2.31	2.77	3.37	0.35	8.16	–
SD	0.92	0.88	0.57	0.62	0.84	0.81	0.27	0.17	0.48	0.54	0.52	1.52	0.89	0.62	0.77	0.98	0.75	0.44	1.90	0.59	0.49	2.91	–

^a*p*<.05, ^b*p*<.01.

CUSE: condom use self-efficacy generally; CUSER: condom use self-efficacy in risky situations; PSE: positive self-esteem; NSE: negative self-esteem; ACS: ability to control stress; HFP: hopeless future perspective; HPP: hopeless personal perspective; PDS: presence of depressive symptoms; AC: avoidance coping; MC: maladaptive coping; SWL: satisfaction with life; PGP: positive growth perspective; LOS: lack of support; PDCU: partner disapproval on condom use; POS: presence of support; BGE: belief about gender equality; PBA: power balance attitudes; IPV: intimate partner violence; BIPV: beliefs about intimate partner violence; SD: standard error.

Post hoc bivariate correlation analysis was conducted in order to determine whether the demographic variables (education, marital status, income, partner's income, household income, and having children) had any significant associations with the outcome variables. Only the variable "having children" showed significant correlations (.13 and .17) with condom use self-efficacy generally and condom use self-efficacy in risky situations. The rest of the demographic variables did not show any significant associations.

Table 3. A multivariate linear regression model of self-determination theory psychological needs and gender–power constructs associated with condom use self-efficacy generally.

Variables	Unstandardized regression coefficient <i>b</i> ; 95% CI	SE-B	Beta (β)	<i>t</i>	Significance (<i>p</i> value)
Constant	−3.51	.50		−7.03	.00
Ability to control stress (ACS)	.09 (−.04 to .24)	.07	.08	1.31	.19
Hopeless future perspective (HFP)	.05 (−.37 to .47)	.21	.01	.24	.81
Hopeless personal perspective (HPP)	−.64 (−1.29 to .01)	.33	−.11	−1.92	.05
Personal growth perspective (PGP)	.14 (.00 to .27)	.07	.13	2.02	.05
HIV knowledge	.19 (.08 to .35)	.06	.19	3.35	.00
Presence of support (POS)	.11 (−.14 to .37)	.13	.05	.88	.38
Gender equality beliefs (GEB)	.16 (.06 to .26)	.05	.19	3.07	.00
Power balance attitudes (PBA)	.46 (.27 to .65)	.09	.29	4.83	.00
Beliefs about intimate partner violence (BIPV)	.05 (.01 to .08)	.02	.16	2.61	.01

SE: standard error; CI: confidence interval.

$R = .54$, $R^2 = .30$, $\Delta R^2 = .27$, standard error of estimate = .802.

A multivariate linear step-wise regression of factors associated with condom use was also conducted to compare the output with results in Table 3. Step 1 included only SDT variables, and the results showed that PGP and HIV knowledge had a significant positive association with condom use self-efficacy generally. Step 2 included SDT and gender–power constructs where PGP, HIV knowledge, PBA, BIPV, and BGE showed a positive association with condom use self-efficacy. HPP also showed a unique association; however, it was a negative one. Step 1: $R = .45$, $R^2 = .20$, $\Delta R^2 = .14$, standard error of estimate = .88; Step 2: $R = .58$, $R^2 = .34$, $\Delta R^2 = .27$, standard error of estimate = .80.

Table 4. A multivariate linear regression model of self-determination theory and gender–power constructs associated with condom use self-efficacy in risky situations.

Variables	Unstandardized regression coefficient <i>b</i> ; (95% CI)	SE-B	Beta (β)	<i>t</i>	Significance (<i>p</i> value)
Constant	−.48	.24		−2.02	.04
Avoidance coping (AC)	.20 (−.01 to .40)	.10	.12	1.89	.06
Lack of support (LOS)	.24 (.06 to .42)	.09	.16	2.56	.01
HIV knowledge	.19 (.08 to .30)	.06	.21	3.36	.00
Gender equality beliefs (GEB)	−.17 (−.27 to .07)	.05	−.21	−3.29	.00

SE: standard error; CI: confidence interval.

$R = .36$, $R^2 = .13$, $\Delta R^2 = .12$, standard error of estimate = .84.

Although only “having children” was significantly correlated with both outcome variables, all the demographic variables (education, marital status, income, partner’s income, household income, having children) were included in multivariate analyses (post hoc) with both outcome variables, respectively. The demographic variables did not seem to have a significant contribution in explaining the variance for both outcome variables. The change (R) was about 5 and 9 percent, and their associations were not significant for the respective variables; therefore, a decision was made to not include demographic variables in the final reported results.

Higher HIV knowledge was significantly associated with increased condom use self-efficacy generally and in risky situations. This positive association is important although knowledge is not considered to be enough to prompt behavior change; it may do so in the long term (Eggers et al., 2014; Ibrahim et al., 2012; Morrison-Beedy et al., 2003; Shikwane et al., 2013). The finding that HIV knowledge is also significant in explaining condom use self-efficacy in risky situations is particularly interesting and emphasizes the importance of empowering young Black women on what to do in different sexual situations as that may serve as a protective factor.

On the issue of being empowered, women who reported positive GEB expressed increased condom use self-efficacy

generally, but the relationship was an inverse one in risky situations. The positive association of equality beliefs and increased condom use self-efficacy generally suggests that those women are in relationships that are more equal where they have more personal agency in sexual situations, and therefore put themselves less at risk. The negative association found for risky situations may mean that women may have had an experience of asking for condom use in these situations and may have encountered resistance, which lowered their self-efficacy. Therefore, they may have learned that in such situations the power shifts toward the male partner. Similarly, positive attitudes toward power balances and negative beliefs on gender-based violence were associated with increased condom use self-efficacy generally. Gender–power

constructs being shown as significant predictors of condom use self-efficacy point to the importance and need for interventions that empower women. Such interventions would give women skills on using the language needed for safe sex behavior negotiation (Jama Shai et al., 2010). Moreover, studies confirm the finding that gender equality is linked to safer sexual behavior and less exposure to intimate partner violence (DePadilla et al., 2011; Wingood et al., 2013).

In terms of the SDT psychological needs, it was remarkable that in risky situations women who experience a lack of social support felt more efficacious to use a condom in risky situations as research shows that a low level of social support is associated with sexual risk-taking (Mazzaferro et al., 2006; Peterson et al., 2010). Past research shows that, in particular, individuals with strong positive behavior attachments report practicing self-control in risky situations for fear of upsetting those social networks (Patrick et al., 2007; Peterson et al., 2010). On the other hand, it may be that women who feel less supported feel a stronger need to take personal responsibility for their health and report more competence to do so. This finding needs further investigation.

The two other types of self-evaluation, namely, personal growth and less HPP, which were classified under the psychological need for autonomy and competence, respectively, were positively associated with condom use self-efficacy generally. Although these associations were moderate, they are worth further exploration because people with positive perspectives display mastery of their immediate environment; they may also feel more autonomous and are more confident in acting on safe sexual decisions (competence) (Ayub and Iqbal, 2012; Trobst et al., 2002).

More variance was explained in condom use self-efficacy generally (30%) than in risky situations (13%). It could be that in general situations when there are less immediate threats and more room to negotiate for condom use women may feel more self-efficacious. In situations of conflict (intimate partner violence and disagreements) as well as in high-risk situations, for example, due to alcohol consumption, external threats may be more salient and acquiescing may seem more self-protecting than feeling confident on insisting on condom use. In this regard, it may be important to measure specifically how women assess risk (e.g. immediate or long term) and how that is associated with acting on their decision-making.

This study has some limitations. First, the sample size was relatively small and women were recruited through IYA; therefore, the sample may not be representative of all rural, poor women in South Africa. Second, our measures relied on self-report of sensitive information about sexually related issues, and participants may have provided responses that are perceived to be socially desirable. However, efforts were made by our research team to encourage honest responses from the participants.

Aside from the limitations of our investigation, this work highlights that it is important to identify new or additional psychosocial determinants of a highly complex behavior as consistent condom use. This may help to formulate new change objectives for interventions to reduce sexual risk behavior among women.

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The authors declare that they have no competing interests.

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Supplementary data accessibility

Due to confidentiality agreements with research collaborators, supporting data can only be made available to bona fide researchers after a 6-month embargo period after publication has passed, and access is subject to a non-disclosure agreement. Details of the data and access requests can be made to the corresponding author.

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