

# Condom use negotiation among high school adolescents in Ghana: the role of gender

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## Abstract

Gender has a profound effect on the sexual risk preventive intentions and behaviour of young people. However, little is known about the role of gender on condom use negotiation among adolescents in Ghana. This study explored gender differences in condom use negotiation among school-going adolescents in Ghana. Participants ( $n = 684$ ) completed self-report measures based on attitudes towards condom use, subjective norms regarding condom use, perceived behavioural control over condom use, intentions to use condoms, and on actual condom use behaviour. Results revealed statistically significant differences in condom use by gender. Specifically, attitudes towards condom use were more favourable among male students than they were among female students. Male students perceived slightly greater control over condom use than did female students. Moreover, male students reported slightly more condom-protected sexual behaviour than did female students. These results highlight the usefulness of designing gender-specific sexual risk reduction programmes among high school adolescents in Ghana.

## Keywords

Adolescents, condoms, gender, HIV prevention, sexual behaviour.

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## Introduction

Gender is crucial in understanding the sexual attitudes and behaviour of young people regarding condom use (Boileau, Zunzunegui, & Rashed, 2009; Pearson, 2006; Small, Nikolova, & Narendorf, 2013). Various studies have reported the existence of gender differences in negotiating condom use (Broaddus, Schmiege, & Bryan, 2011; Calsyn et al., 2013; Dworkin, Treves-Kagan, & Lippman, 2013; Walusaga, Kyohangirwe, & Wagner, 2012). Condom use negotiation difficulties are frequently reported among young men and young women in Ghana (Karim, Magnani, Morgan, & Bond, 2003). For example, Awusabo-Asare, Biddlecom, Kumi-Kyereme, and Patterson (2006) examined sexual and reproductive health knowledge among 12–19 year olds in Ghana. They found that 48% of young women and 60% of young men reported that they would be embarrassed to buy a condom from a pharmacy. The authors also reported that, whereas 50% of young women indicated that they could not ask their sexual partners to use condoms, 58% of young men stated that they were not sure they could use condoms effectively.

Relatedly, in a study among never-married young people in Ghana, Glover et al. (2003) observed that two-thirds of participants expressed their displeasure with young men purchasing and carrying condoms, whereas three-quarters indicated that young women should not be allowed to purchase and carry condoms. In addition, in a trend analysis, Abdul-Rahman, Marrone, and Johansson (2011) reported that increasing numbers of young women in Ghana were expressing negative attitudes towards contraceptives such as condoms. They also found that the use of condoms among young women declined substantially from 63.3% in 2003 to 38.6% in 2008. Abdul-Rahman et al. (2011) noted that condom use misconceptions accounted for the declining interest in using condoms among young Ghanaians.

From this research, it seems clear that little is known about how attitudes to condom use, intentions towards condom use, and condom use behaviour differ by gender among adolescents in Ghana. For example, do Ghanaian male adolescents demonstrate more favourable attitudes to condom use than female adolescents? Is the perception of behavioural control over condom use the same for Ghanaian male and female adolescents? Do intentions to use condoms in the future differ between Ghanaian male and female adolescents? Understanding how in-school Ghanaian adolescents differ by gender relative to important psychosocial variables such as behavioural beliefs, normative beliefs, control beliefs, and intentions regarding condom use may be crucial in designing gender-specific sexual risk reduction interventions that address those gender differences.

Generally, women are perceived to be associated with less sexual risk-taking propensity than do men. Robertson, Stein, and Baird-Thomas (2006) reported that among African-American adolescents, self-efficacy and positive attitudes to condom use were significant predictors of young women's condom use behaviour, whereas only positive condom use attitude was a significant predictor of young men's condom use behaviour. Robertson et al. (2006) concluded that gender may serve to mask differences in theories that are tested with combined samples of men and women and therefore called for health behaviour theories to be tested separately for men and women. Other research among Korean college students has shown that female students knew more about condoms and showed more favourable attitudes towards condom use than did male students (Kang & Moneyham, 2008). Kang and Moneyham (2008) observed that female students exhibited more positive intentions to use condoms in the future than did male students.

In contrast, other research indicates that young men generally report much higher condom use behaviour than do young women, as the latter experience greater difficulty buying and carrying condoms than do the former (Chimbindi, McGrath, San Tint, & Newell, 2010; Newman & Zimmerman, 2000). For example, Prata, Vahidnia, and Fraser (2005) reported that young men in Angola were less likely than young women to feel embarrassed about purchasing and carrying

condoms and that young men reported using condoms more frequently with their sexual partners than did young women. Similarly, among university students, Farmer and Meston (2006) found that, compared with young women, young men demonstrated greater condom use self-efficacy, more favourable condom use attitudes, and fewer perceived barriers to condom use. Other work among young people in Cameroon has shown that, compared with young men, young women consistently reported feeling shy of purchasing condoms in a pharmacy (Meekers & Klein, 2002). Taken together, the sexual behaviour literature on the actual direction of gender influence on condom use among young people appears inconclusive, as some studies have found significant positive relationships between condom use and male gender but not female gender, whereas other investigators have reported contrary results. Thus, it would seem important to further examine the role of gender in condom use negotiation among young people. Viewed from this perspective, attempts to understand gender differences in condom use among Ghanaian adolescents seem warranted.

Compared with nontheory-guided research and interventions, health behaviour theory-guided research and interventions are reported to possess superior explanatory power (Glanz & Bishop, 2010; Painter, Borba, Hynes, Mays, & Glanz, 2008). Nevertheless, to date, there is no known Ghanaian health behaviour theory (i.e., health behaviour theory propounded by Ghanaian researchers using a Ghanaian sample) advanced to adequately account for HIV risk reduction among young people in the country. Health behaviour researchers have noted that an important imperative in evidence-based sexual behaviour research is to utilise a theoretical model that reflects the characteristics of the population and dimensions of the particular behaviour under investigation (Michie & Abraham, 2004; Michie, Johnston, Francis, Hardeman, & Eccles, 2008). Furthermore, such a theoretical model must be logically consistent and should demonstrate sufficient validity through rigorous empirical tests across varying population groups and in different contexts. Moreover, this theoretical model should have a parsimonious framework and well-defined components and should be applicable to both men and women, young and old. Arguably, one theoretical model that seems to satisfy these requirements is the theory of planned behaviour (TPB; Ajzen, 1991). The TPB is a health behaviour theory and postulates that attitudinal beliefs, normative beliefs, and perceived control beliefs predict a person's intention to engage in a specified health behaviour (e.g., condom use) and that intention, in turn, is the best predictor of actual behaviour.

Evidence supporting the predictive utility of the TPB as a model of human health behaviour regarding adolescent condom use comes from several meta-analyses and systematic reviews (Albarracín, Johnson, Fishbein, & Muellerleile, 2001; Albarracín, Kumkale, & Johnson, 2004; Armitage & Conner, 2001; Cooke & French, 2008; Hagger, Chatzisarantis, & Biddle, 2002). The popularity of the TPB model among the social cognition models of health behaviour has been well documented. For example, in an editorial reflecting on the applications of the TPB since its introduction some three decades ago, Ajzen (2011; 2015) noted that, by all known objective measurements in human history, the TPB remained the most cited and most influential theoretical model regarding the prediction of human social behaviour. Moreover, other researchers have shown that the predictive utility of the TPB model is consistently superior to other theoretical models of health behaviour, in predicting and explaining health outcomes (Armitage & Conner, 2000; Hardeman et al., 2002).

Furthermore, compared with other health behaviour theories, the TPB is the most logically consistent and is applicable to health-risk behaviours across many settings and across many population groups (Glanz, Rimer, & Viswanath, 2008). For example, in a recent longitudinal study to compare the predictive power of the health belief model (HBM) with the TPB in relation to explaining young women's intentions to take human papillomavirus vaccine revealed that the TPB demonstrated consistently greater explanatory power than did the HBM (Gerend & Shepherd,

2012; see also Montanaro & Bryan, 2014). The TPB framework provides researchers and health professionals with clear guidelines to inform research and intervention. These considerations informed the choice of the TPB to guide the present research.

Using the TPB's framework, the following hypotheses were examined. We predicted that male students will demonstrate more favourable attitudes towards condom use than will female students, male students will perceive greater control over condom use than will female students, male students will perceive greater normative influence over condom use than will female students, male students will demonstrate greater intentions to use condoms in the future than will female students, and male students will report more condom use behaviour than will female students. This study aimed to determine the role of gender (as independent variable) on components of the TPB (as dependent variables) among high school adolescents in Ghana regarding condom use.

## Method

### Participants

Data for this analysis were obtained from 684 senior high school adolescents ( $n = 335$ , male students;  $n = 349$ , female students) aged 14–20 years, from a public senior high school in Lower Manya Krobo Municipality, Ghana. Lower Manya Krobo is a suburban community in the Eastern Region of Ghana. Recent population and housing census data in Ghana suggest that about 89,246 people live in Lower Manya Krobo Municipality (Ghana Statistical Service., 2013). Participants were recruited in their school with the help of school authorities, using a convenience sampling technique. From these census data, study participants could be described as having a homogeneous low socioeconomic background, because many of them resided in low-socioeconomic status (SES) households in low-SES communities (see, for example, Ghana Statistical Service., 2013).

### Instruments

*Attitudes towards condom use.* Five items, selected from previous research (Basen-Engquist et al., 1999; Carmack & Lewis-Moss, 2009), assessed participants' attitudinal beliefs about condom use. The selected items were piloted for meaningfulness and for contextual relevance. The response scale ranged from 1 (strongly disagree) to 7 (strongly agree). Alpha coefficient ( $\alpha$ ) for the five items in this study was .69.

*Subjective norms regarding condom use.* Five items, selected from previous research (Anderson et al., 2006; Basen-Engquist et al., 1999; DeHart & Birkimer, 1997), assessed participants' perception of descriptive normative influences on them regarding condom use. The selected items were piloted for meaningfulness and for contextual relevance. Following the pilot study, one item was slightly modified. The response scale ranged from 1 (strongly disagree) to 7 (strongly agree). Alpha coefficient ( $\alpha$ ) for the five items in this study was .71.

*Perceived behavioural control over condom use.* Four items, selected from previous research (Carmack & Lewis-Moss, 2009; Jemmott et al., 2007), assessed participants' perceived behavioural control over condom use. The items assessed both perceived difficulty and perceived self-efficacy regarding condom use. The selected items were piloted for meaningfulness and for contextual relevance. Following the pilot study, one item was slightly modified. The response scale ranged from 1 (strongly disagree) to 7 (strongly agree). Alpha coefficient ( $\alpha$ ) for the four items in this study was .75.

*Intentions towards future condom use.* Six items, selected from previous research (DeHart & Birkimer, 1997), assessed participants' intentions to use condoms in the future (i.e., over the coming 3 months). The selected items were piloted for meaningfulness and for contextual relevance. The response scale ranged from 1 (strongly disagree) to 7 (strongly agree). Alpha coefficient ( $\alpha$ ) for the six items in this study was .84.

*Self-reported condom use behaviour.* Seven items, selected from previous research (Holland & French, 2012; Walsh, Senn, Scott-Sheldon, Venable, & Carey, 2011), assessed participants' self-reported condom use over the past 3 months. The selected items were piloted for meaningfulness and for contextual relevance. Following the pilot study, two items were slightly modified. The response scale for this construct ranged from 1 (never) to 7 (all the time). Alpha coefficient ( $\alpha$ ) for the seven items in this study was .89.

## **Procedure**

Permission for this study was obtained from the Ghana Education Service (Ref #: SS86/01/131) and from the Ghana AIDS Commission (Ref #: GAC/RC/01F). The participating school was selected, using a purposive sampling technique. This school was selected because it is a mixed school, with a large student population. It is also the first-choice school for most students and parents in the study area. The principal investigator presented the study protocol together with the permission letters from the Ghana Education Service and the Ghana AIDS Commission to school authorities. School authorities examined the study protocol, including the informed consent and assent forms. School authorities then organised an assembly forum for the principal investigator to inform students about the study. The principal investigator presented a broad description of the aims of the study to students in order to help them decide whether or not they wished to participate in the study. Students were assured of the anonymity of their participation and of the confidentiality of their survey responses. Furthermore, students were informed that participation in the study was voluntary and that they were free to withdraw from the study at any point in time before or during survey administration.

Following this information session with students, school authorities then granted all interested students permission to participate in the study, on a day set aside with the agreement of the principal investigator. Eligibility criteria included never having been married, attaining a minimum age of 14 years, and a willingness to participate in the study. All participants provided written consent and assent prior to participation in this study. However, because the majority of students were in the boarding house (i.e., they lived on the school compound far away from their parents), and because of a prohibition on students' use of cell phones on the school compound, school authorities, in collaboration with the school Parent-Teacher Association (PTA), acted in loco parentis and waived parental consent for interested students aged 14–17 years, who were not legally eligible to sign consent themselves, to participate in this study. Participants completed paper-and-pencil questionnaires in English based on the TPB's components during school hours in their classrooms.

## **Ethical considerations**

This study was approved by the Health Ethics Research Committee of Stellenbosch University, South Africa and by the IRB of Noguchi Memorial Institute for Medical Research, University of Ghana.

**Table 1.** Mean differences in condom use by gender in theory of planned behaviour constructs.

Construct	Male (n = 335)		Female (n = 349)		F	df1	df2	p	Partial $\eta^2$
	M	SD	M	SD					
Attitude	5.81	1.07	5.58	1.11	7.61	1	681	.006	.011
Norm	5.67	1.02	5.73	1.05	0.50	1	681	.479	.001
Control	5.60	1.14	5.26	1.29	13.24	1	681	<.001	.019
Intention	5.83	1.00	5.65	1.13	5.09	1	681	.024	.007
Behaviour	3.42	1.81	2.68	1.70	29.75	1	681	<.001	.042

M: mean; SD: standard deviation; df1: degree of freedom (hypothesis); df2: degree of freedom (error).

## Data analysis

We performed all analyses using the IBM SPSS statistics package (v20). The data were assessed for correspondence with the necessary parametric data analyses assumptions for multivariate analyses of variance, including multivariate normality. Exploratory factor analysis was used to verify construct dimensionality after which score reliability (Thompson & Vacha-Haase, 2000) was determined for each of the five TPB constructs. To examine the hypothesis, one-way multivariate analysis of variance (MANOVA) test was conducted. The TPB components were entered into the equation as dependent variables and gender was entered as fixed factor.

## Results

Descriptive statistics showed that of the 684 students who provided the data for this analysis, 11.7% were in the age range of 14–15 years, 54.1% aged 16–17 years, and 34.2% aged 18–20 years. MANOVA results revealed statistically significant differences in condom use by gender on the composite dependent variable – overall multivariate effect,  $F(5, 677) = 9.08, p < .001$ ; Wilks'  $\lambda = .94$ ; partial  $\eta^2 = .063$ . Gender accounted for 6.3% of the variance in the composite dependent variable scores of the TPB, reflecting a medium effect size. To assess the statistical significance of each of the five TPB components under consideration separately, a Bonferroni adjusted alpha level of ( $p < .01$ ; i.e.,  $.05/5$ ) was used. Specifically, attitudes towards condom use were more favourable among male students ( $M = 5.81, SD = 1.07$ ) than they were among female students ( $M = 5.58, SD = 1.11$ );  $F(1, 681) = 7.61, p = .006$ , partial  $\eta^2 = .011$ ). Male students ( $M = 5.60, SD = 1.14$ ) perceived slightly greater control over condom use than did female students ( $M = 5.26, SD = 1.29$ );  $F(1, 681) = 13.24, p < .001$ , partial  $\eta^2 = .019$ ). In addition, male students ( $M = 3.42, SD = 1.81$ ) reported slightly more condom-protected sexual behaviour than did female students ( $M = 2.68, SD = 1.70$ );  $F(1, 681) = 29.75, p < .001$ , partial  $\eta^2 = .042$  (see Table 1).

## Discussion

This study aimed to explain differences in condom use negotiation by gender among Ghanaian senior high school adolescents, using the TPB's components. Results revealed that gender influenced scores on the TPB components regarding high school adolescents' condom use. In this study, compared with female students, male students demonstrated more favourable attitudes towards condom use. Furthermore, male students perceived slightly greater control over condom use than did female students. Male students also reported more condom-protected sexual behaviour than did female students.

These findings are consistent with those of Molla, Åström, and Brehane (2007) who conducted a study among young people in Ethiopia and found that young men demonstrated more favourable attitudes towards condom use and perceived greater behavioural control over condom use than did young women. These results also support the findings of an early research which suggested that female gender was associated with a lower rate of condom use than male gender, because of the difficulties associated with purchasing condoms by women (Newman & Zimmerman, 2000). The current findings, however, contrast with those reported by Muñoz-Silva, Sanchez-Garcia, Nunes, and Martins (2007) and those reported by Rich, Mullan, Sainsbury, and Kuczmierczyk (2014). For example, Muñoz-Silva et al. (2007) used the TPB's components to investigate the role of gender in condom use among university students and found that attitude was a stronger predictor of intentions to use condoms among female students than it was among male students. Furthermore, Rich et al. (2014) showed that compared with female adolescents, male adolescents reported less favourable attitudes towards condom use. However, consistent with the current results, Muñoz-Silva et al. (2007) reported that perceived control beliefs emerged as a stronger predictor of male students' intentions to use condoms than it did among female students. These differences in results across these studies may reflect differences in sample and setting because Muñoz-Silva et al.'s (2007) study, for instance, was undertaken among university students, whereas the current sample was recruited from a public senior high school in Ghana.

A possible reason why attitudes towards condom use, perceived behavioural control over condom use, and actual condom use were not strong predictors of female students' intentions to use condoms in this study may be that female adolescents in Ghana are not expected to engage in sexual activity, at least, until they are married. This normative belief may make, especially, female adolescents find it difficult to purchase and carry condoms. Awusabo-Asare et al. (2006) reported similar findings in Ghana. In Cameroon, in a study on gender differences in condom use among young people, Meekers and Klein (2002) observed that young women consistently reported feeling shy of purchasing condoms in a pharmacy, compared with young men. Another possible reason is that female adolescents in Ghana may be engaging in sexual activity with older sexual partners, a situation that is likely to make them unable to assert themselves as far as condom use is concerned.

Moreover, it is also possible that female adolescents in Ghana lack important knowledge on the advantages of condom use, which may help explain why Abdul-Rahman et al. (2011) found that increasing numbers of young women in Ghana were rejecting modern contraceptives such as condoms in favour of traditional methods such as 'periodic' abstinence. Correspondingly, Glover et al. (2003) showed that, compared with young men in Ghana, young women were less knowledgeable about condom use. In addition, the current findings also provide some support for the belief held by Fishbein, Hennessy, Yzer, and Douglas (2003) that condom use represents a goal (to be aimed at or to be negotiated via communication with one's sexual partner) for women and a behaviour (to be performed often without negotiation) for men. Stated differently, Fishbein et al. (2003), in shedding light on the dyadic nature of sexual behaviour and condom use, argued that condom use may represent a behaviour (to be performed) for men and a goal (to be negotiated) for women because the male latex condom seems to be the most used, and whereas men take steps to 'use' it (perform the behaviour), women agree to 'receive' it or do otherwise (a goal). Thus, the reported popularity of the male latex condom over the female latex condom among both men and women in the sexual behaviour literature further reinforces the belief that men 'use' condoms and women 'receive' condoms.

Furthermore, in this study, there were no gender differences in subjective norms regarding condom use and in intentions to use condoms in the future, disconfirming our hypotheses. A possible explanation for this finding may be that both young men and young women perceived similar normative influence from friends and significant others (e.g., that school-going adolescents should

not engage in sexual activity). It is possible that male and female students in this study did not differ significantly in relation to their intentions to use condoms because as in-school adolescents, they may have intentions to use condoms, given their educational aspirations, yet they may be unable to carry their intentions through because they may feel their intentions to buy condoms in anticipation of sexual activity may be thwarted by school authorities and parents. For example, in a cross-national sexual behaviour research among adolescents in Ghana, Burkina Faso, Malawi, and in Uganda, Biddlecom, Awusabo-Asare, and Bankole (2009) reported that unmarried young people, especially adolescent women, were under constant monitoring by their parents to prevent them from engaging in sexual activity. As can be expected, this kind of adolescent sexual behaviour 'surveillance' by parents may hinder young people's desire to muster courage and to be in control of their sexual behaviour. Other research has shown that condom use intention is affected by postintention factors such as the intentions of both sex partners (de Visser & Smith, 2004).

Limitations of this study include the use of self-report measures and convenience sampling technique to recruit study participants. The other limitation to note is that this study used a sample recruited from one large municipal, public senior high school out of several public high schools in the Lower Manya Krobo Municipality. Thus, these findings may not generalise beyond the present sample. Nonetheless, the patterns of condom use among adolescents in this study's setting may compare favourably with those of students from other public high schools reported in the adolescent sexual behaviour literature from other geographical locations in Ghana (see, for example, Abdul-Rahman et al., 2011; Aziato et al., 2016; Bingenheimer & Stoebenau, 2016; Krugu, Mevissen, Münkkel, & Ruiters, 2017). Another limitation is the age range (14–20 years) used in this study. It is possible that this large age range may have masked differences in condom use. That is, participant age may have changed systematically (i.e., confounding) with the independent variable (gender) to affect the dependent variables in this study. Therefore, the findings should be interpreted in relation to these limitations.

Future research may consider sampling research participants from public and private senior high schools or from a cluster of schools in the Eastern Region of Ghana. Moreover, while the current results served to extend the literature on gender-related condom use among adolescents by reporting on existing gender differences in behavioural beliefs, perceived control beliefs, and in actual behaviour regarding adolescent condom use among the current sample, these results may not provide conclusive evidence on the literature, regarding the actual direction of the influence of gender on condom use. Further research is warranted in this direction. Consequently, future research on adolescent condom use in Ghana should be designed separately for male and female population groups.

## Conclusion

In this study, young men demonstrated more favourable attitudes towards condom use than did young women. Our findings suggest the usefulness of taking gender into consideration in adolescent sexual risk reduction interventions that target key variables such as behavioural beliefs, perceived control beliefs, and actual condom use. Thus, in-school adolescents in Ghana may benefit from condom use negotiation interventions and assertiveness training designed separately for young men and young women. These gender-specific sexual risk reduction programmes should target key variables such as behavioural beliefs and perceived control beliefs.

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## References

- Abdul-Rahman, L., Marrone, G., & Johansson, A. (2011). Trends in contraceptive use among female adolescents in Ghana. *African Journal of Reproductive Health, 15*, 45–55.
- Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behavior and Human Decision Processes, 50*, 179–211.
- Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. *Psychology & Health, 26*, 1113–1127.
- Ajzen, I. (2015). The theory of planned behaviour is alive and well, and not ready to retire. *Health Psychology Review, 9*, 131–137.
- Albarracín, D., Johnson, B. T., Fishbein, M., & Muellerleile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: A meta-analysis. *Psychological Bulletin, 127*, 142–161.
- Albarracín, D., Kumkale, G. T., & Johnson, B. T. (2004). Influences of social power and normative support on condom use decisions: A research synthesis. *AIDS Care, 16*, 700–723.
- Anderson, E. S., Wagstaff, D. A., Heckman, T. G., Winett, R. A., Roffman, R. A., Solomon, L. J., & Sikkema, K. J. (2006). Information-Motivation-Behavioral Skills (IMB) Model: Testing direct and mediated treatment effects on condom use among women in low-income housing. *Annals of Behavioral Medicine, 31*, 70–79.
- Armitage, C. J., & Conner, M. (2000). Social cognition models and health behaviour: A structured review. *Psychology & Health, 15*, 173–189.
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology, 40*, 471–499.
- Awusabo-Asare, K., Biddlecom, A., Kumi-Kyereme, A., & Patterson, K. (2006). Adolescent sexual and reproductive health in Ghana: Results from the 2004 National Survey of Adolescents (Occasional Report No. 22). Retrieved from <http://www.guttmacher.org/pubs/2006/06/08/or22.pdf>
- Aziato, L., Hindin, M. J., Maya, E. T., Manu, A., Amuasi, S. A., Lawerh, R. M., & Ankomah, A. (2016). Adolescents' responses to an unintended pregnancy in Ghana: A qualitative study. *Journal of Pediatric and Adolescent Gynecology, 29*, 653–658.
- Basen-Engquist, K., Mässe, L. C., Coyle, K., Kirby, D., Parcel, G. S., Banspach, S., & Nodora, J. (1999). Validity of scales measuring the psychosocial determinants of HIV/STD-related risk behavior in adolescents. *Health Education Research, 14*, 25–38.
- Biddlecom, A., Awusabo-Asare, K., & Bankole, A. (2009). Role of parents in adolescent sexual activity and contraceptive use in four African countries. *International Perspectives on Sexual and Reproductive Health, 35*, 72–81.
- Bingenheimer, J. B., & Stoebenau, K. (2016). The relationship context of adolescent fertility in southeastern Ghana. *International Perspectives on Sexual and Reproductive Health, 42*, 1–12.
- Boileau, C., Zunzunegui, M. V., & Rashed, S. (2009). Gender differences in unsafe sexual behavior among young people in urban Mali. *AIDS Care, 21*, 1014–1024.
- Broadbudd, M. R., Schmiede, S. J., & Bryan, A. D. (2011). An expanded model of the temporal stability of condom use intentions: Gender-specific predictors among high-risk adolescents. *Annals of Behavioral Medicine, 42*, 99–110.
- Calsyn, D. A., Peavy, M., Wells, E. A., Campbell, A. N. C., Hatch-Maillette, M. A., Greenfield, S. F., & Tross, S. (2013). Differences between men and women in condom use, attitudes, and skills in substance abuse treatment seekers. *The American Journal on Addictions, 22*, 150–157.
- Carmack, C. C., & Lewis-Moss, R. K. (2009). Examining the theory of planned behavior applied to condom use: The effect-indicator vs. causal-indicator models. *The Journal of Primary Prevention, 30*, 659–676.
- Chimbindi, N. Z., McGrath, N., Herbst, K., San Tint, K., & Newell, M.-L. (2010). Socio-demographic determinants of condom use among sexually active young adults in rural KwaZulu-Natal, South Africa. *The Open AIDS Journal, 4*, 88–95.

- Cooke, R., & French, D. P. (2008). How well do the theory of reasoned action and theory of planned behaviour predict intentions and attendance at screening programmes? A meta-analysis. *Psychology & Health, 23*, 745–765.
- DeHart, D. D., & Birkimer, J. C. (1997). Trying to practice safer sex: Development of the sexual risks scale. *Journal of Sex Research, 34*, 11–25.
- de Visser, R. O., & Smith, A. M. A. (2004). Which intention? Whose intention? Condom use and theories of individual decision making. *Psychology, Health & Medicine, 9*, 193–204.
- Dworkin, S. L., Treves-Kagan, S., & Lippman, S. A. (2013). Gender-transformative interventions to reduce HIV risks and violence with heterosexually-active men: A review of the global evidence. *AIDS and Behavior, 17*, 2845–2863.
- Farmer, M. A., & Meston, C. M. (2006). Predictors of condom use self-efficacy in an ethnically diverse university sample. *Archives of Sexual Behavior, 35*, 313–326.
- Fishbein, M., Hennessy, M., Yzer, M., & Douglas, J. (2003). Can we explain why some people do and some people do not act on their intentions? *Psychology, Health & Medicine, 8*, 3–18.
- Gerend, M. A., & Shepherd, J. E. (2012). Predicting human papillomavirus vaccine uptake in young adult women: Comparing the health belief model and theory of planned behavior. *Annals of Behavioral Medicine, 44*, 171–180.
- Ghana Statistical Service. (2013). 2010 population and housing census: Regional analytical report-Eastern Region. Retrieved from [http://www.statsghana.gov.gh/docfiles/2010phc/2010\\_PHC\\_Regional\\_Analytical\\_Reports\\_Eastern\\_region.pdf](http://www.statsghana.gov.gh/docfiles/2010phc/2010_PHC_Regional_Analytical_Reports_Eastern_region.pdf)
- Glanz, K., & Bishop, D. B. (2010). The role of behavioral science theory in development and implementation of public health interventions. *Annual Review of Public Health, 31*, 399–418.
- Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). (2008). *Health behaviour and health education: Theory, research and practice* (4th ed.). San Francisco, CA: Jossey-Bass.
- Glover, E. K., Bannerman, A., Pence, B. W., Jones, H., Miller, R., Weiss, E., & Nerquaye-Tetteh, J. (2003). Sexual health experiences of adolescents in three Ghanaian towns. *International Family Planning Perspectives, 29*, 32–40.
- Hagger, M. S., Chatzisarantis, N., & Biddle, S. J. H. (2002). A meta-analytic review of the theories of reasoned action and planned behaviour in physical activity: Predictive validity and the contribution of additional variables. *Journal of Sport & Exercise Psychology, 24*, 3–32.
- Hardeman, W., Johnson, M., Johnson, D. W., Bonetti, D., Wareham, N. J., & Kinmonth, A. L. (2002). Application of the theory of planned behaviour in behaviour change interventions: A systematic review. *Psychology & Health, 17*, 123–158.
- Holland, K. J., & French, S. E. (2012). Condom negotiation strategy use and effectiveness among college students. *Journal of Sex Research, 49*, 443–453.
- Jemmott, J. B., Heeren, G. A., Ngwane, Z., Hewitt, N., Jemmott, L. S., Shell, R., & O'leary, A. (2007). Theory of planned behaviour predictors of intention to use condoms among Xhosa adolescents in South Africa. *AIDS Care, 19*, 677–684.
- Kang, H. S., & Moneyham, L. (2008). Use of emergency contraceptive pills and condoms by college students: A survey. *International Journal of Nursing Studies, 45*, 775–783.
- Karim, A. M., Magnani, R. J., Morgan, G. T., & Bond, K. C. (2003). Reproductive health risk and protective factors among unmarried youth in Ghana. *International Family Planning Perspectives, 29*, 14–24.
- Krug, J. K., Mevissen, F., Munkel, M., & Ruiters, R. (2017). Beyond love: A qualitative analysis of factors associated with teenage pregnancy among young women with pregnancy experience in Bolgatanga, Ghana. *Culture, Health & Sexuality, 19*, 293–307.
- Meekers, D., & Klein, M. (2002). Understanding gender differences in condom use self-efficacy among youth in urban Cameroon. *AIDS Education and Prevention, 14*, 62–72.
- Michie, S., & Abraham, C. (2004). Interventions to change health behaviours: Evidence-based or evidence-inspired? *Psychology & Health, 19*, 29–49.
- Michie, S., Johnston, M., Francis, J., Hardeman, W., & Eccles, M. (2008). From theory to intervention: Mapping theoretically derived behavioural determinants to behaviour change techniques. *Applied Psychology, 57*, 660–680.

- Molla, M., Åstrøm, A. N., & Brehane, Y. (2007). Applicability of the theory of planned behavior to intended and self-reported condom use in a rural Ethiopian population. *AIDS Care*, 19, 425–431.
- Montanaro, E. A., & Bryan, A. D. (2014). Comparing theory-based condom interventions: health belief model versus theory of planned behavior. *Health Psychology*, 33, 1251–1260.
- Muñoz-Silva, A., Sánchez-García, M., Nunes, C., & Martins, A. (2007). Gender differences in condom use prediction with Theory of Reasoned Action and Planned Behaviour: The role of self-efficacy and control. *AIDS Care*, 19, 1177–1181.
- Newman, P. A., & Zimmerman, M. A. (2000). Gender differences in HIV-related sexual risk behavior among urban African American youth: A multivariate approach. *AIDS Education and Prevention*, 12, 308–325.
- Painter, J. E., Borba, C. P. C., Hynes, M., Mays, D., & Glanz, K. (2008). The use of theory in health behavior research from 2000 to 2005: A systematic review. *Annals of Behavioral Medicine*, 35, 358–362.
- Pearson, J. (2006). Personal control, self-efficacy in sexual negotiation, and contraceptive risk among adolescents: The role of gender. *Sex Roles*, 54, 615–625.
- Prata, N., Vahidnia, F., & Fraser, A. (2005). Gender and relationship differences in condom use among 15-24-year-olds in Angola. *International Family Planning Perspectives*, 31, 192–199.
- Rich, A., Mullan, B. A., Sainsbury, K., & Kuczmierczyk, A. R. (2014). The role of gender and sexual experience in predicting adolescent condom use intentions using the theory of planned behaviour. *The European Journal of Contraception & Reproductive Health Care*, 19, 295–306.
- Robertson, A. A., Stein, J. A., & Baird-Thomas, C. (2006). Gender differences in the prediction of condom use among incarcerated juvenile offenders: Testing the Information-Motivation-Behavior Skills (IMB) model. *The Journal of Adolescent Health*, 38, 18–25.
- Small, E., Nikolova, S. P., & Narendorf, S. C. (2013). Synthesizing gender based HIV interventions in Sub-Saharan Africa: A systematic review of the evidence. *AIDS and Behavior*, 17, 2831–2844.
- Thompson, B., & Vacha-Haase, T. (2000). Psychometrics is datametrics: The test is not reliable. *Educational and Psychological Measurement*, 60, 174–195.
- Walsh, J. L., Senn, T. E., Scott-Sheldon, L. A. J., Vanable, P. A., & Carey, M. P. (2011). Predicting condom use using the Information-Motivation-Behavioral Skills (IMB) model: A multivariate latent growth curve analysis. *Annals of Behavioral Medicine*, 42, 235–244.
- Walusaga, H. A., Kyohangirwe, R., & Wagner, G. J. (2012). Gender differences in determinants of condom use among HIV clients in Uganda. *AIDS Patient Care and STDs*, 26, 694–699.