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Does Past Condom Use Moderate the Future Condom Use Intention-Behavior Relationship? Results from a Ghanaian Sample

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ABSTRACT

Behavioral intention is an important predictor of actual behavior. Yet, people often fail to act on their intentions. This study used panel data to examine whether intention interacts with past behavior in determining future behavior. Young people in the Eastern Region of Ghana ($N = 956$, 495 = female, 461 = male) completed a structured self-administered questionnaire, assessing intentions to use condoms and past condom use behavior at Time 1, and future condom use behavior at Time 2. Hierarchical multiple regression analyses indicated that intentions to use condoms and past condom use behavior accounted for a significant proportion of the variance in future condom use behavior. In addition, past condom use moderated the future condom use intention–behavior relationship. These results demonstrate the usefulness of considering young people’s past experiences with condoms in informing the design of condom use skills training. In other words, a condom use skills training intervention that uses the pedagogical approach of starting from the “known” to the “unknown” might benefit young Ghanaians.

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Adolescent sexual health; condoms; intention-behavior gap; past behavior

The theory of planned behavior (TPB; Ajzen, 1991, 2011, 2014) postulates that behavioral intention is the proximal antecedent of behavior. The TPB states that attitudes, subjective norms, and perceived behavioral control predict a person’s intentions to engage in a specified health behavior (e.g., condom use), and that behavioral intention, in turn, is the most important determinant of a person’s actual behavior. Generally, the predictive utility of the TPB’s model constructs has been supported in the sexual behavior literature (see, e.g., Bryan, Kagee, & Broaddus, 2006; Schaalma et al., 2009; Teye-Kwadjo, Kagee, & Swart, 2017a). Behavioral intentions (e.g., “I intend to use condoms consistently, if I have sex in the next 3 months,” or “I plan to use condoms consistently, if I have sex in the next 3 months”) may be described as a person’s self-instruction to perform a specified behavior in order to attain an outcome (Sheeran & Webb, 2016). Viewed from this theoretical perspective, it would seem that people who intend to use condoms consistently would act on these intentions

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when the time comes. Consistent condom use is known to be effective in reducing heterosexual transmission of HIV and other STDs (Liu et al., 2014; Weller & Davis-Beatty, 2002).

Intention-Behavior Consistency

Previous research examining the TPB showed mixed results regarding the intention-behavior relationship. Whereas some studies had found support for the intention-behavior relationship (see, e.g., Sacolo et al., 2013; Schaalma et al., 2009), others did not (see, e.g., Sniehotta, 2009; Teye-Kwadjo, Kagee, & Swart, 2017b). De Visser and Smith (2004) demonstrated that intentions to use condoms might not necessarily predict condom use behavior as suggested by the TPB as intentions may be affected by postintention factors (i.e., factors that operate after the formation of intentions), such as the intentions of a person's sexual partner. In other words, the dyadic context of sexual intercourse may require that a person's intentions to use condoms correspond with the intentions of the person's sexual partner (de Visser & Smith, 1999). Thus failure by a person's sexual partner to "endorse" the use of condoms may prevent his or her intentions to use condoms from being enacted. As an example, a young man may intend to use condoms with his sexual partner to prevent pregnancy. However, it is possible for the sexual partner to decline condom use with the explanation that she would like to test her ability to become pregnant. Similarly, whereas a female student may intend to use condoms to prevent pregnancy and to avoid dropping out of school, a male sexual partner who wishes to test his ability to impregnate her and thereby prove his masculinity, may refuse to use condoms. Other literature shows that in demanding situations people's intentions may not be as influential on behavior as predicted by the TPB (Bauman, Karasz, & Hamilton, 2007; Einstein, McDaniel, Williford, Pagan, & Dismukes, 2003). These results indicate that acting on one's condom use intentions with one's sexual partner may require more than only behavioral intentions (see, e.g., Sales et al., 2012; VanderDrift, Agnew, Harvey, & Warren, 2013; Widman, Golin, & Noar, 2013). Arguably, the context of condom use may be considered a demanding situation because condom use may have to be negotiated, often just preceding the sex act.

Further, using the TPB model with two waves of longitudinal data, Prati, Mazzoni, and Zani (2014) found that the relationship between intention and behavior was bidirectional, contrary to the postulate of the TPB. Moreover, in two meta-analyses, Webb and Sheeran (2006) and Sheeran et al. (2016) found that the strength of the intention-behavior relationship was modest, with a Cohen's $d_+ = 0.36$. Clarifying the strength of this association by converting $d_+ = 0.36$ to R^2 (i.e., calculating the coefficient of determination) shows that behavioral intention explains only 3% of the variance in behavior. These results suggest that the intention-behavior relationship postulated by the TPB is susceptible to intervening variable effects (i.e., moderators and mediators), raising important theoretical questions about the strength of this relationship. There appears to be a growing interest in understanding the intervening variables in the condom use intention-behavior relationship.

Past Behavior and Condom Use

Webb and Sheeran (2006) reported that several constructs, including habitual control, moderated the intention-behavior relationship. They found that intentions seemed to demonstrate a greater effect on actual behavior when participants reported having more control

over a specified behavior ($d_+ = 0.45$) than when they reported having less control over the behavior ($d_+ = 0.25$). Further, Prati et al. (2014) found that, condom use at T1 ($r = .61, p < .001$) was a stronger predictor of condom use at T2 than was intention at T1 ($r = .26, p < .05$). Similarly, in a three-wave longitudinal study using the TPB's framework, Teye-Kwadjo et al. (2017b) observed that condom use at T1 explained 40% of the variance in condom use at T2 and that condom use at T2 accounted for 65% of the variance in condom use at T3, even after controlling for the autoregressive effects of condom use at T1. In this context, condom use at T1 may reflect previous condom use, whereas condom use at T2 and T3 may reflect future condom use. Therefore, these results indicate that previous condom use (past behavior) affects future condom use. Correspondingly, other researchers working independently have reported that past behavior moderates the condom use intention–behavior relationship (Conner, McEachan, Lawton, & Gardner, 2016; Norman & Conner, 2006). In other words, experience with a behavior in the past affects the performance of that behavior in the future, and thus serves to influence the intention–behavior relationship (Ajzen, 2002; Kovač & Rise, 2007; Webb, Sheeran, & Luszczynska, 2010).

The Present Research

Sexual behavior research in Ghana has shown that only a small proportion of young people use condoms consistently (Abdul-Rahman et al., 2011; Doku, 2012; Teye-Kwadjo, 2014) and that gender differences exist regarding condom use (Teye-Kwadjo, Kagee, & Swart, 2017c). Reports on youth sex education programs by the Ghana AIDS Commission and by the Ghana Health Service indicate high HIV and STD knowledge among young people (Ghana AIDS Commission, 2014). It appears that young Ghanaians express strong intentions to practice safe sex in order to reduce their risk for HIV and other STDs. However, recent Sentinel Surveillance and Demographic and Health Survey data (DHS) suggested that only a small proportion of young people carried their safe sex intentions through (Awusabo-Asare et al., 2017; Ghana Health Service, 2015). Therefore, notwithstanding their good intentions, young people in Ghana often fail to act upon their condom use intentions. There is a need to understand this intention–behavior gap among this population group. Teye-Kwadjo, Kagee, and Swart (2017a) tested the TPB in Ghana using data on youth condom use among other things to examine the intention–behavior relationship. Results showed that the intention–behavior relationship was significant ($r = .41, p < .001$). However, an important limitation of Teye-Kwadjo et al.'s (2017a) study was that they did not investigate the possibility that conceptual factors (i.e., a putative third variable) may moderate the relationship between intention and behavior. It is possible that among this population, a moderating variable (Fairchild & McQuillin, 2010; Jose, 2013) may change the magnitude or direction of the effect intention has on behavior.

In Ghana, youth sexual behavior is proscribed and premarital sex is considered socially unacceptable. For example, Biddlecom, Awusabo-Asare, and Bankole (2009) showed that unmarried young people, especially adolescent women, in Ghana, Burkina Faso, Malawi, and in Uganda were constantly being monitored by their parents to prevent them from engaging in sexual activity. In addition, Asampong, Osafo, Bingenheimer, and Ahiadeke (2013) found that sociocultural norms about sexual behavior in Ghana convey the sense that young women are never “grown-up” and thus, do not “qualify” to leave their parental home until they are married. To this extent, Ghanaian adults may not be interested in young

people's previous sexual experiences (including previous condom use) before engaging them in condom use skills training, as they (young people) are not expected to have had sexual intercourse, and indeed used condoms, before marriage in accordance with normative social behavior (see, e.g., Kumi-Kyereme, Awusabo-Asare, Biddlecom, & Tanle, 2007). Research on how adolescent Ghanaians' previous sexual experiences relate to their future sexual behavior is warranted, especially the role of past condom use in the condom use intention–behavior relationship. Our aim was to examine the predictive validity of previous condom use (past behavior) as a moderator of the intention–behavior relationship among young people in Ghana. The following hypotheses are proposed.

Hypothesis 1 (*H1*): Intentions to use condoms in the future would be significantly positively associated with greater condom use behavior.

Hypothesis 2 (*H2*): Past condom use behavior would be significantly positively associated with future condom use behavior.

Hypothesis 3 (*H3*): Past condom use behavior would have a moderating effect on the relationship between condom use intentions and future condom use behavior, such that condom use intentions would have greater enhancing effects on future condom use behavior as past condom use behavior increases.

Figure 1 shows the hypothesized conceptual moderation model.

Method

Sample and Procedure

Data for this analysis were from a longitudinal data set obtained in 2014 from public senior high school students, aged 14–20 years ($N = 956$) in the Eastern Region of Ghana. In Ghana, it is common for young people aged 18 years and above to still be in senior high school due to class repetition resulting from poor academic work, school dropout, and re-entry, or due to a person's inability to start school early. Population and housing census data in Ghana (Ghana Statistical Service, 2013) indicate that many people living in the Eastern Region are poor. Other data suggest that the patterns of youth sexual behavior in the Eastern Region is similar (Ghana AIDS Commission, 2014; Ghana Health Service, 2015).

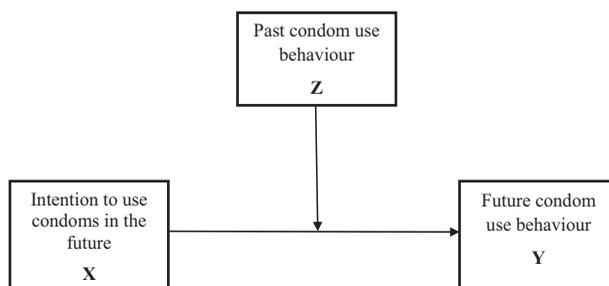


Figure 1. Conceptual moderation path diagram. X = the independent variable, Y = the dependent variable, Z = the moderator variable, and XZ = the interaction of the independent variable and the moderator variable.

We used purposive sampling whereby participants were recruited in their school with the help of school authorities. The eligibility criteria for participation included never having been married, being 14 years and older, being sexually active, being a registered student of the participating school, and being willing to participate in the study. Thirteen students who reported being below the age criterion were excluded from the study at the first assessment. Eligible participants completed paper-and-pencil questionnaires in English during school hours in their classrooms. As part of the survey, participants were provided with instructions to help them create their own alpha-numeric string identifiers at the top of each questionnaire they completed. These were later used to match their responses across the two waves of data collection. All participants provided informed assent and consent according to their self-declared age. The school's PTA acted in *loco parentis*, to waive parental consent, as the majority of the students lived on the school compound, far away from their parents or guardians. This study was approved by the IRB of Noguchi Memorial Institute for Medical Research, University of Ghana.

Measures

Sociodemographic Information

Participants provided information on gender, age, and student status (*day students* [i.e., students who attended school from home] and *boarding students* [i.e., students who lived in the school compound]). Past condom use behavior was assessed with one item: "Have you ever used a condom before?" The response is reported using "yes [1], or no [2]." Sociodemographic information was assessed at baseline. To assess behavioral intention and behavior, items were selected and modified from previously published research. Following this, we conducted a pilot analysis, using data obtained from 20 potential participants to assess survey items for meaningfulness and for contextual relevance. The pilot survey was administered twice to the same participants, with 2 weeks' interval between the two administrations. These surveys took an average of 25 min to complete. Test-retest reliability coefficients for the 2 weeks' interval ranged from $r = .68$ to $r = .81$, which were acceptable for this study.

Intentions

Intentions to use condoms were assessed at baseline. Six items selected from previous research (DeHart & Birkimer, 1997) were used to assess participants' intentions to use condoms in the future (i.e., over the coming 3 months). A sample item is "I intend to use condoms, if I have sex in the next 3 months." Scale responses ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). Scale responses were scored such that higher scores indicated greater intentions to use condoms over the next 3 months. The Cronbach's alpha coefficient for the six items was .84, 95% CI [.82, .86]. See Table 1 for the full intention scale and its psychometric properties.

Behavior

Condom use behavior was assessed at a 3-month follow-up. Seven items selected from previous research (Holland & French, 2012; Walsh, Senn, Scott-Sheldon, Venable, & Carey, 2011)

**Table 1.** Component Matrix with One Factor Solution from Exploratory Factor Analysis ($N = 956$).

Factor	Items	Range	M	SD	Corrected item-total correlation	h^2	Factor loading
Intention scale	1. I plan to use condoms, if I have sex in the next 3 months.	1-7	5.90	1.36	.67	.59	.77
	2. I am determined to use condoms, if I have sex in the next 3 months.	1-7	5.74	1.41	.65	.48	.73
	3. I intend to use condoms, if I have sex in the next 3 months.	1-7	5.97	1.30	.64	.51	.72
	4. I am likely to use condoms, if I have sex in the next 3 months.	1-7	5.91	1.32	.65	.52	.69
	5. I will use condoms, if I have sex in the next 3 months.	1-7	6.07	1.19	.59	.42	.65
	6. I would use them, if I were given free condoms in the next 3 months.	1-7	5.52	1.48	.53	.32	.57
	Eigenvalue			3.37			
	Total % of variance explained			56.22			
	Cronbach's alpha coefficient			.84			
Behavior scale	1. How often did you use a condom when you had sex with your regular boyfriend or girlfriend in the past 3 months?	1-7	2.82	2.24	.64	.55	.83
	2. How often did you use a condom when you had sex with someone who is not your regular boyfriend or girlfriend in the past 3 months?	1-7	2.29	2.02	.56	.44	.81
	3. How often did you insist that you or your boyfriend or girlfriend use condoms during sex in the past 3 months?	1-7	2.82	2.27	.72	.65	.81
	4. How often did you refuse to have sex with your boyfriend or girlfriend because he/she would not use a condom in the past 3 months? ^a	1-7	3.09	2.38	.65	.56	.77
	5. How often are you the person that has to suggest or insist on using condoms before sex in the past 3 months?	1-7	2.96	2.27	.72	.65	.75
	6. How often are you the person that puts the condom on your boyfriend or girlfriend during sex in the past 3 months?	1-7	3.28	2.40	.76	.69	.74
	7. How often are you the person that has to provide the condoms during sex with your boyfriend or girlfriend in the past 3 months?	1-7	2.67	2.16	.67	.59	.66
	Eigenvalue			4.12			
	Total % of variance explained			58.84			
	Cronbach's alpha coefficient			.89			

Note: Extraction method: Principal component analysis; Rotation method: Oblimin with Kaiser normalization.

h^2 = extraction communalities, M = mean, SD = standard deviation.

^a = item is reverse-scored.

were used to assess participants' self-reported condom use over the past 3 months. Selected items sought to assess relevant aspects of condom use such as condom use frequency (e.g., "How often did you use a condom with your regular boyfriend/girlfriend when you had sex in the past 3 months?"), condom non-use frequency (e.g., "How often did you refuse to have sex with your boyfriend/girlfriend because he/she would not use a condom in the past 3 months?"), condom use communication (e.g., "How often are you the person that has to suggest or insist on using condoms before sex in the past 3 months?"), and type of partners [steady or casual] (i.e., "How often did you use a condom with someone who is not your regular boyfriend/girlfriend when you had sex in the past 3 months?"), with a primary focus on assessing the frequency or consistency of actual condom use in this sample. Respondents were required to report their condom-protected sexual behavior patterns by indicating how often they engaged in heterosexual sexual intercourse and how often they or their sexual partner used condoms in the course of those sexual acts. Scale responses ranged from 1 (*never*) to 7 (*all the time*). Scale responses were scored such that higher scores reflected more condom-protected sexual behavior over the past 3 months. Cronbach's alpha coefficient for the seven items used in this study was .89, 95% CI [.87, .90]. See [Table 1](#) for the full behavior scale and its psychometric properties.

Statistical Analyses

Descriptive statistics were calculated for the sample (gender, age range, student status, and past condom use behavior). Next, the data were assessed for normality and for other parametric data assumptions. To examine the factor structure and construct dimensionality of the intention and behavior scales, we performed two separate exploratory factor analyses (EFA) using principal components analysis as the factor extraction method. To assess factorability of the data, we used Kaiser—Meyer—Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. Our sample size ($N = 956$) exceeded 10:1 participant-to-item ratio recommended for determining sample size adequacy for factor analysis (Costello & Osborne, 2005; DeVellis, 2016). We determined a minimum factor loading using ($r \geq .40$; Field, 2009) for the retention of items. All retained items on the factors loaded above this criterion ($r \geq .40$; see [Table 1](#)). In addition, Cattell's scree test and Kaiser's criterion were used to determine the number of factors to retain. We used oblique rotation solution (direct oblimin). Consistent with previous assessments of condom use intentions and behavior (Carmack & Lewis-Moss, 2009; DeHart & Birkimer, 1997), we expected a one-factor solution (i.e., unidimensional construct) for each scale (i.e., intention and behavior). Following this, we calculated the internal consistency reliability (Cronbach's alpha) for each scale.

Prior to computing the interaction terms for the moderation analysis, the continuous predictor variable was standardized and the categorical predictor variable was dummy-coded. This was done to reduce multicollinearity and to enhance the interpretability of the interaction terms. Following this, moderation analysis was conducted, using hierarchical multiple regression (Aiken & West, 1991; Jaccard & Turrissi, 2003). At step 1, age, gender, and student status (i.e., day or boarding) were entered into the regression equation as statistical controls. At step 2, behavior was regressed on intention and the moderator (i.e., past behavior). At step 3, the interaction term (intention \times past behavior) was added to the regression model. To detect a moderating effect, the interaction term had to be statistically significant ($p \leq .05$). The two-way statistical moderation model that was tested in this study

is denoted by the following regression equation:

$$Y = b_0 + b_1X + b_2Z + b_3XZ + \varepsilon \quad (1)$$

(where Y = the dependent variable, X = the independent variable, Z = the moderator variable, XZ = the interaction of the independent variable and the moderator variable, b_0 = the intercept, b_1 = the coefficient of X , b_2 = the coefficient of Z , b_3 = the coefficient of the cross-product term of XZ , ε = the error term). To probe the two-way interaction effect, a simple slope interaction plot was used. All analyses were conducted in SPSS statistics package (v21).

Results

Exploratory Factor Analyses

We conducted two separate exploratory factor analyses (EFA) on the intention and behavior constructs. Regarding the intention construct, Bartlett's test of sphericity was significant, $\chi^2(15) = 1482.20$, $p < .001$, suggesting that our sample size ($N = 956$) was adequate for conducting EFA. The KMO measure of sampling adequacy was .85, exceeding the minimum threshold (.6) for factorability. This value indicates that our data were suitable for calculating an EFA. Inspection of the scree plot showed that the plot flattened sharply after the first factor. Therefore, a one-factor solution emerged with an eigenvalue greater than 1 (3.37). For the behavior construct, Bartlett's test of sphericity was, $\chi^2(21) = 3188.20$, $p < .001$, and KMO was .90. As with the intention construct, a one-factor solution with eigenvalue greater than 1 (4.12) emerged for the behavior. All items loaded ($r > .40$) on their respective factors (see Table 1).

Descriptive and Sensitivity Analyses

Of 1023 students who were approached initially, 983 (96%) agreed to participate in the study. Nine hundred fifty-six (97.3%) participants from the baseline sample provided data at 3-month follow-up. The follow-up sample consisted of 495 young women and 461 young men aged 14 to 20 years. Logistic regression models revealed non-significant differences between baseline and follow-up regarding the following demographic variables: student status (day or boarding), age group, gender, and past condom use, $\chi^2(4) = 5.11$, $p = .276$. In addition, the baseline and follow-up scores did not differ significantly in intentions to use condoms, $t(981) = .435$, $p = .664$. Data were excluded for the 27 participants who dropped out at Time 1 from the analyses. Therefore, the following results relate only to the 3-month follow-up sample ($N = 956$). Of this sample, 39% and 61% were day and boarding students, respectively. About 47.1% of participants indicated that they had previously used condoms prior to their participation in this study, while 52.9% reported never having used condoms before.

Moderating Effect of Past Condom Use

Tests for the moderation effects of the intention-behavior relationship regarding condom use are reported in Table 2. As can be seen in Table 2, the predictor (intention) and the

Table 2. Hierarchical Regression Model for the Prediction of Future Condom Use.

Variable entered	Models		
	1	2	3
Age	.15***	.08**	.08**
Gender	-.11**	-.09**	-.09**
Student status	.06	.06	.06
Intention		.09**	.00
Past behavior		.23***	.22***
Intention × past behavior			.15***
R^2	.05	.11	.13
Model F	16.05***	24.52***	22.43***
ΔR^2	—	.07	.02
ΔF	—	32.47***	16.06***

Note. $N = 956$, ** $p < .01$. *** $p < .001$.

moderator (past behavior) accounted for a significant proportion of the variance in condom use behavior, $R^2 = .11$, $F(2, 950) = 24.52$, $p < .001$. In addition, past condom use behavior had a moderating effect on the relationship between condom use intention and behavior, $\Delta R^2 = .015$, $\Delta F(1, 949) = 16.06$, $p < .001$, $b = .152$, $t(949) = 4.01$, $p < .001$. That is, the addition of the interaction term to the regression model accounted for slightly more variance (i.e., 13%) in the outcome variable (behavior) than the predictor and the moderator variables alone (i.e., 11%).

Discussion

This study examined the moderating role of past behavior in the association between intentions to use condoms and condom use behavior among young people in the Eastern Region of Ghana. Results showed that past behavior moderated the intention–behavior relationship (see Table 2), with past behavior increasing the conditional effect of intentions on behavior. Specifically, a two-way simple slope interaction plot indicates that past condom use experience strengthens a person’s intentions to use condoms in the future (see Figure 2). In other words, past condom use experience enhances the likelihood of future condom use such that intention will likely predict behavior only when the frequency of past behavior is low.

Our results are consistent with those of Turchik and Gidycz (2012) who reported that among a US university sample past behavior moderated the intention–behavior relationship regarding youth condom use with the TPB. Our findings also compare favorably with earlier TPB-based condom use research in Tanzania among secondary school students that found that past behavior enhanced the effect of intention in the prediction of behavior (Lugoe & Rise, 1999; see also Godin, Fortin, Michaud, Bradet, & Kok, 1997). Correspondingly, in a study among HIV positive men who have sex with men, Schultz, Godin, and Kok (2011) found that past behavior significantly interacted with intentions to predict actual condom use. In addition, our results are consistent with the results of a meta-analysis, regarding the prediction of condom use as safe sex behavior (McEachan, Conner, Taylor, & Lawton, 2011). Specifically, in a meta-analysis of 237 studies, McEachan et al. (2011) reported that behavioral intentions accounted for only 19.3% of the variance in behavior, whereas past behavior demonstrated a medium-to-large relationship with future behavior ($r = .50$). Other research has shown that motivation and intention alone are not enough for condom use but

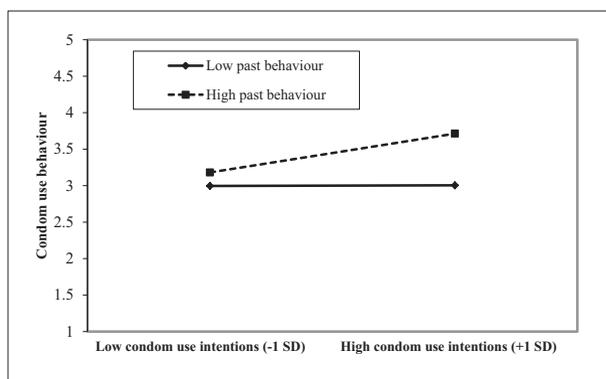


Figure 2. Unstandardized simple slopes for the association between intentions to use condoms and condom use at low past behavior and high past behavior (moderator).

rather actual preparatory behaviors such as buying and keeping condoms help to translate intentions into actions (Carvalho, Alvarez, Barz, & Schwarzer, 2015).

According to Albarracín et al. (2005), past behavior is a good predictor of future behavior as behavioral practices have the potential to affect people's attitudes which in turn, affect people's subsequent behaviors. People who are asked about their attitudes toward condoms would recall their recent condom use behavior (see also Albarracín & Wyer, 2000). Consistent with our results, Ajzen (2002) and Hagger, Chatzisarantis, and Biddle (2002) found past behavior to predict behavior over and above behavioral intentions, and thus recommended it for inclusion in the TPB model's constructs. Other research has reported that the consistency of past behavior gives rise to habit, which, in turn, enhances the prediction of behavior (Danner, Aarts, & de Vries, 2008; Gardner, Abraham, Lally, & de Bruijn, 2012; Oullette & Wood, 1998). Consequently, habit (Verplanken & Orbell, 2003; Webb et al., 2010; Wood, Tam, & Querrero-Witt, 2005) has been shown to bridge the intention-behavior gap, increasing the effect of behavioral intention on overt behavior. Other work has accentuated the role of habit in determining future condom use behavior (Shafii, Stovel, Davis, & Holmes, 2004; Štulhofer, Baćak, Ajduković, & Graham, 2010; Yzer, Siero, & Buunk, 2001). Our results extend the call for the inclusion of past behavior as one of the constituent components in the TPB.

Another possible explanation for past behavior predicting future behavior may be that with previous experience, individuals tend to benefit from hindsight. That is, past experiences with condom use may serve to considerably equip individuals with skills training, which may relate directly to future condom use. For example, a past experience with condom use may serve to erase acquired hedonistic beliefs and myths about condoms and to increase pro-condom use attitudes and intentions. In addition, most people would also expect their past behavior to be consistent with their future behavior to avoid cognitive dissonance (Bem, 1967).

Theoretical Implications for the TPB

As with previous studies reported in the TPB literature (e.g., Prati et al., 2014; Sniehotta, Presseau, & Araujo-Soares, 2014; Teye-Kwadjo et al., 2017b), our findings have important theoretical implications for the TPB as a social cognition model of human social behavior. In this study, behavioral intentions predicted actual behavior as postulated by the TPB.

However, this intention-behavior relationship was moderated by past behavior, suggesting that other variables may either enhance or attenuate the effect behavioral intention has on behavior, contrary to the postulate of the TPB. Our results suggest that the intention-behavior relationship does not occur in a vacuum but that it is susceptible to the effects of past behavior. These results highlight opportunities for theory refinement.

Other research has found that people seldom act on their intentions (Bauman et al., 2007; Inauen, ShROUT, Bolger, Stadler, & Scholz, 2016; Rhodes & de Bruijn, 2013; Rhodes & Dickau, 2012; Webb & Sheeran, 2006). In addition, people who possess pre-existing characteristics of high intentions regarding a specified behavior (e.g., condom use), often experience low intention-behavior correspondence (Fishbein, Hennessy, Yzer, & Douglas, 2003). That is, only people with extremely high intentions (i.e., above an average level of intentions) are most likely to act upon their intentions. Moreover, early research has shown that behavioral intention is an unstable construct and that stable intentions are enacted more frequently than are unstable intentions (Sheeran et al., 1999; see also Sheeran & Orbell, 1998). In a recent meta-analysis, Rhodes and Dickau (2012) found that the weighted average effect size for intention was ($d_+ = 0.45$) and that of behavior was ($d_+ = 0.15$), leading the authors to conclude that there is a weak relationship between intention and behavior.

In explaining the intention-behavior gap reported in the TPB literature, Fishbein et al. (2003) argued that a person's lack of skills and/or other situational constraints may prevent him or her from acting on his or her intentions and that behavioral skills or abilities may attenuate or enhance his or her intention-behavior correspondence. We note that this explanation is not fatal for the postulated model relationships of the TPB. However, an important first step requires that future research examines and partials out the effects of past behavior on the intention-behavior relationship. It is also possible that the intention-behavior relationship, as postulated by the TPB, is behavior-dependent. That is, some individual behaviors (e.g., exercise behavior, smoking cessation, weight control, dietary behavior) would most likely produce greater intention-behavior correspondence than behaviors that require the agreement of two or more persons for their performance (e.g., condom use, safe sex behavior). Condom use as a health protective behavior may not be under the volitional control of an individual because of the dyadic nature of the activity. There is a need for clear guidelines on how the TPB should be applied to investigate behaviors that are not under volitional control of the actors (e.g., condom use, cervical screening). Taken together, our findings extend the intention-behavior gap literature and echo the call for the TPB's refinement.

Conclusion

Literature indicates that intention to use condoms may be affected by factors that operate before and after the formation of a person's behavioral intention. This study showed that among young people in the Eastern Region of Ghana the intention-behavior relationship regarding condom use is affected by factors that operate before the formation of intentions. Specifically, among this sample the intention-behavior relationship is enhanced by past behavior, such that past condom use behavior strengthens a person's intentions to use condoms in the future. These results imply that interventions to increase consistent condom use among young people in the Eastern Region of Ghana should focus on pre-intention factors such as past condom use behavior. Condom use skills training among this population group should use the pedagogical approach of starting from the "known" (i.e., what young people

already know as well as their experiences about condoms) to the “unknown” (i.e., new skills young people will learn about condoms). The effect of past condom use behavior on future condom use behavior reported in this study suggests that early condom use skills training among young Ghanaians may be useful as it may help prevent a bad experience with condoms, which may attenuate the future condom use intention–behavior relationship.

Disclosure

The research reported on here emerged from the doctoral dissertation of the corresponding author. Thus, opinions expressed and conclusions arrived at are those of the authors and are not to be attributed to the Graduate School or Stellenbosch University. All procedures followed were in accordance with ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all participants for being included in the study

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