
RESEARCH ARTICLE

The Predictive Role of Self-efficacy, Outcome Expectancies, Past Behavior and Attitudes on Condom Use in a Sample of Female College Students

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This study investigated the impact of self-efficacy in relation to condom use. A sample of 87 female college students completed self-report measures related to their sexual history, attitudes towards condoms and past condom use, as well as their outcome expectancy and intention to use condoms in the future. The results showed a positive correlation between self-efficacy and positive attitudes towards condom use, as well as correlations between past behavior, self-efficacy and intention to use condoms in the future. Multiple linear regression models were used to further explore the relationship between self-efficacy, past condom use, outcome expectancy and attitudes toward condoms, with the intention to use condoms in the future. The results demonstrated that both self-efficacy and past condom use are significant predictors of an individual's intention to use condoms in the future.

Keywords: self-efficacy; safer sex practices; condom use; female college students; outcome expectancies

Safer sex practices are desirable for both men and women. There are benefits associated with salubrious sex behaviors, such as promoting the emotional and physical bond with a partner. In spite of these benefits, college students remain inconsistent condom users (Centers for Disease Control and Prevention [CDC], 2012). Social-cognitive researchers believe that students' motivation to engage in safer sex can indeed direct their efforts to regularly use condoms (French & Holland, 2013). Specifically, self-efficacy (i.e., one's perceived ability to accomplish a given task) yields a heightened motivation to engage in protected sex. People who judge themselves as capable tend to display greater persistence on tasks, for instance when developing consistent safer sex practices.

Positive relationships have been found between self-efficacy levels and condom use. However, many studies have exclusively relied on male college students (Bryan, Aiken, & West, 1997; Fazekas, Senn & Ledgerwood, 2001). As such, there is a lack of empirical literature focusing on the intention of females to practice safer sex. We would argue that safer sex practices are psychologically reinforced by one's perceived ability to use condoms. Empirical evidence has demonstrated that people with high levels of condom use self-efficacy are more likely to bring up condoms with a partner, communicate more (and thus normalize)

condom use, and will persist in maintaining a satisfactory safer sex routine (O'Leary, Jemmott, & Jemmott, 2008). In short, those who display high levels of safer sex practice self-efficacy are expected to make successful decisions regarding sexual health (Bryan et al., 1997).

Female College Students and Condom Use

Research on safer sex practices indicates that female college students are especially inconsistent condom users (French & Holland, 2013; Kiene, Tennen, & Armeli, 2008). Sexually transmitted diseases (STDs) have also been found to be more easily transmittable from men to women than vice versa (American College Health Association, 2012; CDC, 2012; Bryan et al., 1997). In addition, the potential for long-term health problems in women who contract STDs is far greater than in men. For example, human papillomavirus (HPV), which is most often reported in young women, can lead to genital warts and several forms of cancer, including cervical cancer (CDC, 2012). Other STDs can lead to long-term complications that include pelvic inflammatory disease, and in severe cases, sterility (CDC, 2013).

Clearly, there is a need for both men and women to protect themselves when engaging in sexual activity. However, most studies have focused specifically on men's condom use or their perceived risk of contracting HIV/AIDS (Bandura, 1989; Forsyth, Carey, & Fuqua, 1997; Wulfert & Wan, 1993). Although past research has not always excluded women regarding their condom use, the majority of women studied are those considered to be "at risk", such as women who are intravenous drug users, of minority ethnic groups, or economically disadvantaged (Carey et

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al., 1997; Sterk, Klein, & Elifson, 2003). Rather than focusing on any specific “at risk” groups, the rationale of the present study was to investigate the psychological correlates of condom use among a variety of female college students from an urban campus in New York City (NYC).

Since 2007, a large amount of public advertising in NYC has focused on the promotion of safer sex. This has resulted in the distribution of over 18 million free condoms per year to health centers, bars, restaurants, and schools (Kugler, 2007). Although the condoms NYC has provided are easily available, the number of reported cases of STDs continues to rise in NYC and throughout the United States (CDC, 2007, 2012, 2013). Therefore, inconsistent condom use in female college students does not bespeak an external lack of resources. In order to provide an explanation as to why female college students decide whether or not to use a condom, it is useful to turn our attention to theories of positive health-seeking behaviors.

Theory of Planned Behavior in the Context of Condom Use

The Theory of Planned Behavior (TPB; Ajzen & Madden, 1986) seeks to explain intentionality and motivation in human behavior. According to TPB, any behavioral intention is influenced by three main variables: attitude, subjective norms, and perceived behavioral control (Albarracín, Johnson, Fishbein &, Muellerleile, 2001; Armitage & Conner, 2004). Attitude encompasses an individual's positive or negative perspective regarding a particular behavior (e.g., “wearing a condom makes sex feel less enjoyable”) and is weighted by the subsequent evaluation of consequences that may arise from that behavior (e.g., “even though wearing a condom makes sex feel less enjoyable, I feel safer when I use them”) (Albarracín et al., 2001; Kidwell & Jewell, 2010).

Subjective norms refer to the social pressures, opinions and obligations of important persons that surround the individual in question, with regards to the proposed behavior. In the case of condom use, subjective norms include the influence of significant others with respect to their opinions of sexual practices (Albarracín et al., 2001; Kidwell & Jewell, 2010). The weight of subjective norms on behavioral intent depends on how much the individual conforms to these social pressures, opinions and obligations. Thus, behavioral intent to use condoms may decrease if an individual wishes to appease social norms against condom use (e.g., “condoms aren't cool”). Likewise, the behavioral intent to use condoms may increase if an individual has sex with others who wish to use condoms on a regular basis.

Finally, and most significantly to TPB, perceived behavioral control (PBC) refers to an individual's perception of their ability to perform a certain behavior, or the amount of control a person believes they possess in a given situation over their behavioral intentions (Albarracín et al., 2001; Kidwell & Jewell, 2010). Therefore, the likelihood of using condoms will remain low for an individual who possesses low PBC, yet will increase with higher levels of PBC. The notion of outcome expectancy is central to PBC.

Outcome expectancy refers to the expected emotions or consequences that may result from a specific behavior, such as using a condom or not (Wulfert & Wan, 1993). Empirical research on PBC has found that people who have a heightened sense of PBC formulate their behavioral intentions in particular by assessing their outcome expectancy (Wall, Hinson & McKee, 1998).

The connection between PBC and self-efficacy

Bandura (1977) has argued for a distinction between the skills necessary to perform behaviors (e.g., being able to physically use a condom) and the outcome expectancy of said behaviors. For example, Fazekas, Senn and Ledgerwood (2001) found that an individual could worry about the perceived consequences of not using a condom during sex regardless of their perceived ability to use a condom. Perhaps most importantly, perceived trust is considered to be an influential factor for condom use. For example, Sanderson & Yopyk (2007) propose that an individual's beliefs about whether their partner will be insulted by the suggestion of condoms can influence the couple's condom use (Sanderson & Yopyk, 2007).

Self-efficacy is a strong predictor of task persistence and task success (Bandura, 1986; Bandura & Cervone, 1983, 1986; Cervone & Peake, 1986). Although it is an internal motivator, it can also mediate the effects of external influence. Typically, self-efficacy acts as a buffer against negative feelings that could range from minor anxiety to excessive worries about sexual activities among teenagers (Caprara, Steca, Cervone, & Artistico, 2003). Within condom use research, negative feelings are often associated with partners' dissatisfaction about condom use requests (French & Holland, 2013). We suspect that people who display high levels of safer sex self-efficacy are able to mitigate the effect of their partner's potential dissatisfaction about such condom use requests. Self-efficacy for social interactions is, in fact, also associated with better outcomes around conflict resolution (Bandura, 1997). Although we cannot directly measure this process, we imagine that the ability to communicate about the benefits of safer sex practices would instill a more open approach to intimacy between partners. The condom use self-efficacy scale used in our study contains relevant elements of communication ability around sensitive issues, such as condom use negotiation with a partner.

PBC measures internal factors that lead to behavioral intent. These factors ultimately relate more to concepts of perceived *control*, rather than perceived *confidence*. PBC also focuses on external loci of control that contribute to behavioral intent. While this factor is important to consider, we focused more on the internal psychological processes. PBC relies on the milieu, which can be difficult to measure. However, an internal construct, such as self-efficacy, may be more consistent within a specific domain and thus provide more information about behavioral patterns. Therefore, self-efficacy is a valuable psychological construct in the assessment of the internal processes that lead to self-confidence.

Social Cognitive Theory in the Context of Condom Use

Self-efficacy is part of the broader Social Cognitive Theory (SCT; Bandura, 1986), which is a psychological model of how thoughts and motivations shape our conduct. When examining the interplay between social and cognitive variables that guide behavior, successful personal experiences (i.e., mastery), successful vicarious experiences (i.e., social learning), verbal persuasion and a heightened sense of arousal increase individuals' confidence in their abilities to accomplish tasks. Consequently, these variables lead to greater persistence on tasks and more consistent goal-setting (Bandura, 1977).

The key overarching paradigm of SCT lies within its triadic reciprocal determinism, whereby personal factors, the environment and an individual's behavior reciprocally influence each other (Bandura, 1989). The interplay between personal factors (e.g., self-efficacy), perception of outcomes and the intention to execute behavior (i.e., using a condom) is particularly relevant to the current study. Few studies have examined how self-efficacy directly relates to condom use outcome expectancies. The links from self-efficacy processes to outcome expectations are particularly important in the current study. People with higher self-efficacy beliefs tend to set more challenging outcome expectations and remain committed to them. These mechanisms, in turn, contribute to motivation and achievement (Bandura & Cervone, 1983, 1986).

Tsay, Childs, Cook-Heard and Studevant (2013) performed a study on a sample of incarcerated youths between 13 and 18 years old, which illustrates the strength of the relationship between condom use self-efficacy and intent to use condoms. Results showed a strong positive relationship between intent to use condoms and condom use self-efficacy, as well as a moderately weak positive correlation between condom use knowledge and intent to use condoms. In addition, there was a moderately weak positive correlation between HIV/STD knowledge and intent to use condoms. However, results also indicated a weak negative relationship between overall HIV/STD knowledge and condom self-efficacy. This suggests that in spite of knowledge about the risks and consequences of unsafe sex, participants still did not feel confident in their ability to use condoms. Thus, these results demonstrate that self-efficacy has a greater effect on intent to practice safer sex in the future than simply knowledge of consequences alone. The current study included a measure of feelings about outcome expectancies. This allowed for the measurement of intent to use condoms, while still accounting for the influence of self-efficacy.

Study Aims

The current study aimed to address the limitations in the literature on condom use self-efficacy by including measurements of positive attitudes, outcome expectancy and behavioral intention to use condoms. In addition, it recruited a hitherto neglected population (i.e., female college students). The study aimed to test what predisposes female college students to practice safer sex in the future.

The ability to assert one's right to use a condom during any sexual practice must begin with internal confidence and the belief in one's ability to do so. We hypothesized that self-efficacy would be the most significant predictor of the intention to use a condom, as opposed to measurements of positive attitudes towards condom use and/or outcome expectancy about the use of condoms.

Method

Participants

87 female undergraduate students from a variety of backgrounds completed the survey (see **Table 1**)¹. Participants were recruited from a pool of introductory psychology and business students from Baruch College (City University of New York), an urban university in the United States. Students self-selected to participate in the study and fulfilled a course requirement through participation. The only inclusion criteria were that students were female and aged 18 years old and older. More than a third of participants ($n = 31$; 35.6%) were aged between 18 and 19 years old (i.e., the traditional age of first and second year undergraduate students). Additionally, a large number of participants ($n = 42$; 48.3%) reported that they were "seriously dating one person."

Materials and Measures

Participants provided demographic data and completed a number of self-report measures described below.

Condom Use Self-Efficacy Scale (CUSES; Brafford & Beck, 1991)

Condom use self-efficacy was measured using the CUSES. This is a 28-item scale developed specifically for college students to measure the level of confidence an individual has in their ability to buy, carry, talk about, put on, and take off condoms successfully with a partner. Respondents rate their level of confidence on a 4-point Likert scale from (0) *strongly disagree* to (4) *strongly agree* against a series of statements. Examples include "I feel confident in my ability to use a condom correctly" and "I feel confident I could stop to put a condom on my partner (or sex toy) even in the heat of passion." A total composite score is then calculated. Higher scores indicate greater perceived confidence in one's ability to manage condom use. The reliability of the scale in the current study was $\alpha = 0.91$.

Multidimensional Condom Attitudes Scale (MCAS; Helweg-Larsen & Collins, 1994)

The University of California, Los Angeles (UCLA) MCAS measures attitudes towards condoms. This is a 25-item scale in which respondents rate statements on a 7-point Likert scale from (1) *strongly disagree* to (7) *strongly agree*. The scale includes items such as "I think condoms are an excellent means of contraception" and "It is very embarrassing to buy condoms." A total composite score is then calculated. Higher scores indicate more positive attitudes toward condoms. The reliability of the scale in the current study was $\alpha = 0.86$.

Demographic Variables		N	Percentage
Age	18–21	58	66.7%
	22–25	18	20.7%
	26–30	6	6.9%
	30+	5	5.7%
Ethnicity	Asian	30	34.4%
	Caucasian	24	27.6%
	Hispanic	18	20.6%
	Black	15	17.2%
Relationship Status	Seriously dating one person	42	48.3%
	Single/No partner(s)	19	21.8%
	Dating one person, not serious	17	19.5%
	Married	8	9.2%
	Dating more than one person	1	1.1%
Sexual Activity (Intercourse)	Active in the past three months	64	73.6%
	Never been sexually active	15	17.2%
	Not active in the last three months	8	9.2%

Table 1: Participant Demographic Variables.

Outcome expectancies. The current study used Wulfert and Wan's (1993) measure of outcome expectancies to measure participants' beliefs about the "consequences" of condom use. This is a 20-item scale in which respondents rate statements on a 7-point Likert scale from (1) *completely disagree* to (7) *completely agree*. Items are categorized under one of five factors: (i) negative expectancies (e.g., "Condoms make sex less enjoyable"); (ii) partner-related concerns (e.g., "Using condoms would create distrust in my partner"); (iii) disease prevention (e.g., "Condoms are effective for preventing sexually transmitted diseases"); (iv) pregnancy prevention (e.g., "Condoms are effective for preventing pregnancy"); and (v) condom attributes (e.g., "Condoms are easily available"). For the first two factors, lower scores indicate positive beliefs about condoms, thus they are reverse-coded. For the remaining three factors, higher scores indicate positive beliefs about condoms. Two separate scores were calculated: (a) consequences of condom use (i.e., the factors of disease prevention and pregnancy prevention; $\alpha = 0.84$); and (b) feelings about condom use (i.e., the factors of negative expectancies, partner-related concerns and condom attributes; $\alpha = 0.83$).

Intention to use condoms. Intention to use condoms was measured on a 5-point Likert scale ranging from (1) *strongly disagree* to (5) *strongly agree* with the statement, "I intend to use condoms the next time I have sex". This statement was modeled on similar statements in Bryan, Aiken and West's (1997) study of condom use behavior.

Demographics and sexual history questions. All participants were asked to state their age and ethnicity for demographic purposes. In order to allow for the comparison of test scores across different criteria, a selection of questions were put together to create the sexual history

questionnaire. Participants were asked about their sexual activity in the past three months and three years. Three-month measurements have proven to be stable accounts of sexual activity for women (Wulfert & Wan, 1993). The data measuring the past three years were used in order to compare overall habits and include women who were not currently sexually active, but had been in the past. Women were also asked to give their relationship status and whether or not they use an alternative form of birth control.

Social Desirability Scale-17 (SDS-17; Stöber, 2001). Social desirability was measured using the SDS-17. This measure uses a true or false system. Participants score one point for each time they respond "true" to statements that are impossibly desirable, for example, "In traffic I am always polite and considerate of others." They also score one point for each time they respond "false" to statements that are reasonably undesirable, for example, "There has been an occasion when I took advantage of someone else." A total composite score is then calculated. No data were eliminated because of a participant's score on the SDS-17. The SDS-17 displays reliability of $\alpha = 0.74$.

The results indicated that any social desirability bias in the current study was independent from the study variables as the correlations were not significant: CUSES: $r(86) = -.05$; MCAS: $r(86) = -.06$, intention to use condoms: $r(86) = .12$; negative outcome (overall): $r(86) = .08$; negative outcome (dissatisfaction): $r(86) = .06$; and negative outcome (avoidance): $r(86) = .09$.

Procedure

Participants signed up for the study online through Baruch College's Psychology and Management Participant Pool. At the scheduled time, participants came to the assigned room and sat at tables at least six feet apart to

	1	2	3	4	5	6
1. Intention to Use Condoms	--					
2. Self-Efficacy	.32**	--				
3. Negative Feelings	-.25*	-.39**	--			
4. Attitudes	.21+	.71**	-.53**	--		
5. Past Use of Condoms	.32**	.39**	-.26*	.29**	--	
6. Negative Consequences	-.04	.14	.05	.30**	.13	--

Note: + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 2: Correlation Analyses for Intention to Use Condoms, Self-Efficacy, Negative Feelings, Attitudes about Condoms, Past Use of Condoms and Negative Consequences.

ensure privacy. Participants read and signed informed consent forms and listened to the principal investigator give an oral reminder about the sensitivity of the subject matter. Informed consent forms were collected and placed in a file separate from all data. Participants then received the survey packet and were instructed to take their time, answer questions as honestly as possible, and deposit their surveys into a closed box on their way out.

Results

Preliminary Analysis

In the first stage of analysis, the effect of socio-demographic factors, relationship status and recent sexual activity were considered. An ANOVA was performed to determine the effect of these variables on intent to use condoms. There was no significant main effect between relationship status ($F(1,86)=.103$, $p=.750$) or sexual activity ($F(2, 85)=2.216$, $p=.116$). There was also no significant interaction ($F(1,86)=.832$, $p=.364$). A second ANOVA was performed to determine the effect of these variables on self-efficacy. There was again no main effect between relationship status ($F(1,86)=1.847$, $p=.178$) or sexual activity ($F(2,85)=1.821$, $p=.168$), nor was there an interaction ($F(1,86)=1.51$, $p=.287$). Thus, it was not necessary to control for these variables in hypothesis-testing results.

Correlational Analysis

In the next stage of analysis correlations were performed between intention to use condoms ($M = 3.62$, $SD = 1.46$), outcome expectancy (both negative consequences and negative feelings about condoms) ($M = 4.50$, $SD = 0.62$), past condom use ($M = 1.93$, $SD = 0.94$), and attitudes about condoms ($M = 128.54$, $SD = 18.13$). There was no significant relationship between negative consequences and intention to use condoms. All other correlations were significant (see **Table 2**). Specifically, self-efficacy ($M = 85.14$, $SD = 16.41$) was significantly and positively correlated with intention to use condoms, indicating that females who perceived themselves as capable of mastering condom use had higher intentions to use condoms in future sexual activities.

Additionally, the relationship between self-efficacy, negative feelings, attitudes, and past use of condoms was examined. As shown in **Table 2**, the relationships were all significantly correlated.

	Future Intention to Use Condoms				
	B	Std. Error	Beta	<i>t</i>	<i>p</i>
Self-Efficacy	.04	.02	.23	2.12	.04
Past Use of Condoms	.26	.13	.23	2.06	.03

Table 3: Multiple Linear Regression Model for Future Intention to Use Condoms.

Regression Analysis

One of the study aims was to examine the role of self-efficacy as a predictor with respect to future intention to use condoms. Therefore, a multiple linear regression model was used in which the criterion was the intention to use a condom in the future. The predictors, namely attitudes about condoms, negative feelings, self-efficacy and past use of condoms, were entered stepwise into the regression analysis (see **Table 3**). Self-efficacy and past use of condoms were significant predictors ($R^2 = .15$, $F(2, 86) = 7.01$, $p = .001$). When attitudes about condoms ($\alpha = -.14$, $p = .39$) and negative feelings ($\alpha = -.17$, $p = .17$) were entered into the regression model, the overall predictive value did not change significantly ($R^2 = .12$, $F(2,86) = 5.81$, $p = .004$).

Discussion

The results indicated that intention to use condoms is predicted by self-efficacy. Self-efficacy was correlated with past condom use, which also predicted the future intention to use condoms. Furthermore, participants' intentions to use condoms were more centered on self-efficacy than the external perceived consequences of participation in unsafe sexual practice. Self-efficacy is thus highly relevant. Contrary to the TPB literature (e.g., Ajzen & Madden, 1986; Albarraçin et al., 2001; Armitage & Conner 2004), the multiple linear regression did not indicate that outcome expectancy is a significant predictor of future intent to use condoms.

Although the findings in the current study are preliminary, they are important as they cluster together several related variables with respect to safer sex practices in the female college student population. Indeed, research in the domain of self-efficacy and its correlates with condom use is somewhat undermined by a lack of consistency in measurement and procedure, including neglect towards vulnerable populations (e.g., female college students). Most previous research has largely focused its attention on men. The actual occurrence of women using condoms

consistently is surprisingly low. As such, many women may not fit traditional “at risk” criteria, yet may still be “at risk” owing to their patterns of condom use. Thus, it is necessary to study all women, and especially younger, college-aged women who may have only recently become sexually active.

Further investigation is also necessary in order to determine whether self-efficacy remains a predictor of consistent condom use, as many female college students have been found to decrease frequency of condom use across their first year of university. Likewise, intra-individual inconsistencies may impact enduring condom use self-efficacy levels (Walsh, 2013). The considerable role of self-efficacy in intention to use condoms raises the possibility of designing an intervention with self-efficacy as a mediating factor, so that this pattern of decreased condom use can be changed.

The results indicated that higher levels of self-efficacy relate to higher intentions to use condoms, but not to negative feelings (i.e., an individual's beliefs around consequences of their actions, such as a negative reaction from a partner when proposing condom use). The results did not support the influence of external loci of control and therefore highlight the importance of internal mechanisms of motivation (i.e., self-efficacy).

By increasing one's belief in their ability to obtain, ask for, and ultimately use condoms, (i.e., increasing their self-efficacy), safer sex practices normalize behavioral intentions. The findings in the current study suggest that research dedicated to investigating the potential factors affecting condom use self-efficacy would be valuable. For example, de-stigmatizing condom use, particularly among younger age groups, could help to instill feelings of vicarious success, which Bandura (1997) found to be a driving force of self-efficacy. In other words, even those who have not yet had their first sexual experience could increase their safer sex self-efficacy through facilitated conversations centered on other individuals' successful safer sex experiences. This approach is supported by Widman, Golin, and Noar's (2013) longitudinal study into intention to use condoms, likelihood to engage in sexual communication and reports of condom use among a HIV-positive sample across a six month period. Their results indicated that individuals who displayed high levels of both intention to use condoms and sexual communication were less likely to have unprotected sex with all partners. Although intention to use condoms and sexual communication were both associated with actual safer sex practices, this study also revealed that the interaction between these variables most accurately predicted behaviors (Widman, Golin, & Noar, 2013). It may be worth expanding on this work to discern whether individuals who have not yet engaged in intercourse can be similarly influenced by sexual communication.

Study Limitations

First and foremost, the lack of specific TPB measures in the study presents a limitation in examining internal and external loci of control against self-efficacy. This could be

addressed by adding TPB measures in any future studies. In addition, the study used a relatively small sample size, meaning that its findings should be confirmed against a larger sample size.

Another limitation was the lack of identification of sexual orientation among participants. The measures included in our research pertained specifically to the use of male condoms, yet it may be the case that some of our participants identified not only as heterosexual, but also as bisexual, homosexual or another sexual orientation. If a participant has engaged in sex that was not strictly heterosexual male-female sex, the questions presented by our measures relating to male condom use would become irrelevant. There is still the possibility of transmitting STDs in female-female sex. However, safer sex options such as gloves, dental dams, and female condoms are commonly available and easy to use. The inclusion of measures specifically related to gay women's condom use would prove a novel approach to examining self-efficacy and safer sex practices.

Conclusions

Although previous research on the relationship between condom use and self-efficacy has suggested a positive correlation between the two, there is a dearth of research examining self-efficacy and condom use in female college students. Our study capitalized on this gap to show positive correlation between self-efficacy and future intention to use condoms. In addition, a multiple linear regression suggested that outcome expectancy is not a significant predictor of future intention to use condoms. Future studies may wish to implement measures of TPB, as well as using a larger sample size and taking sexual orientation into account. Clearly, a shift in sex education is necessary so that condom use and safer sex practices are regarded as positive and are incorporated willingly by both sexual partners. By increasing self-efficacy, and therefore an individual's confidence in their ability to use condoms, safer sex practices can become the norm, thus creating positive benefits for all individuals involved.

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Author Note

The authors declare that they have no competing interests in publishing this article.

Notes

¹ No variables were significantly correlated with age

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