Critical Public Health

ISSN: 0958-1596 (Print) 1469-3682 (Online) Journal homepage: www.tandfonline.com/journals/ccph20

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To cite this article: Phillip Dangaiso, Brighton Nyagadza, Constantino Pedzisai & Divaries Cosmas Jaravaza (2026) Integrating individual consciousness and indigenous culture to predict university students' STIs preventive health behaviours: Reinvigorating Africa's forgotten longevity antidote, Critical Public Health, 36:1, 2611444, DOI: 10.1080/09581596.2025.2611444

To link to this article: https://doi.org/10.1080/09581596.2025.2611444

Published online: 05 Jan 2026.

Elevate Series

CRITICAL PUBLIC HEALTH
2026, VOL. 36, NO. 1, 2611444
https://doi.org/10.1080/09581596.2025.2611444

RESEARCH ARTICLE

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Integrating individual consciousness and indigenous culture to predict university students' STIs preventive health behaviours: Reinvigorating Africa's forgotten longevity antidote

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ABSTRACT

Introduction: Sexually Transmitted Infections (STIs) remain a critical public health issue globally hence promotion of preventive health behaviors has been strongly envisaged. Although preventive health research has been evident, present literature overlooks the role of indigenous culture in regulating health behaviors especially in native African communities.

Theory: This study extends the theory of planned behavior (TPB) with Ubuntu and African religiosity to predict university students' behavioral intentions and subsequent STI-preventive behaviors.

Method: Employing an explanatory design and a quantitative approach, structural equation modelling (SEM) estimated the model with 274 responses obtained through a person-administered questionnaire survey at two public universities in Zimbabwe.

Findings: Health attitudes, peer influence, perceived behavioral control, Ubuntu orientation, and African religiosity positively and significantly predicted behavioral intentions, which subsequently positively influenced STI-preventive behaviors.

Discussion: This study demonstrates that health promoters need targeted culturally-responsive approaches that stimulate positive health beliefs towards STIs prevention, trigger sexual and reproductive health interests through group appeals, and improve perceived self-efficacy as young adults contemplate adopting recommended preventive health actions. More importantly, this paper pinpoints the roles of Ubuntuism and native religiosity as ingrained axioms that could foster health behavior change in sub-Saharan African communities. Incorporating these underlying cultural themes into health communication messages could be key levers for sustainable health behaviors.

ARTICLE HISTORY
Received 1 July 2025
Accepted 27 December 2025

KEYWORDS
Planned behaviour; African humanism; Ubuntu; preventive health behaviours; indigenous culture; self-regulation

Introduction

The prevalence of Sexually Transmitted Infections (STIs) remains one of the most critical public health issues in most economies, especially developing ones (Kwasikumah et al., 2024). Addressing this problem largely underscores the need for extensive research on preventive behaviours in the severely affected populations such as the WHO African region. Previous studies attribute preventive health actions to an individual's perceived susceptibility, perceived severity, perceived barriers, perceived benefits, self-efficacy, and cues to action (Abreu et al., 2024; Frank et al., 2025; Rosenstock, 2000). Other scholars cite individual characteristics and experiences, behaviour-specific cognitions and affect, and behavioural outcomes (Bakhshi et al., 2022; Eghtedar et al., 2022; Pender, 1996; Rafat et al., 2025). Further, more empirical studies mention individual attitudes, social influences, and perceived behavioural control (Conner et al., 2023; Hagger et al., 2022; Hagger & Hamilton, 2025; Loaiza-Guevara et al., 2024), drawing from the theory of planned behaviour (TPB) (Ajzen, 1991). Although literature provides the multi-factorial determinants of preventive health actions, limited empirical attention has been directed towards the cultural antecedents.

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The present study extends the TPB with Ubuntu orientation and native African religiosity to predict STIs preventive behaviours in the sub-Saharan African context.

Fundamentally, the United Nations Development Programme's Sustainable Development Goal number 3 (SDG 3) on good health and well-being (United Nations, 2015) is greatly enhanced through, inter alia, a reduction in STIs. A decrease in STIs would potentially help bridge the 31-year gap between developed and developing countries, in terms of life expectancy (Meshram, 2020). Owing to their constrained capacity and over-dependence on donor-funded healthcare to mitigate the compounded effects of STIs, most developing countries face important consequences. STIs, especially the Human Immunodeficiency Virus (HIV), are a major antecedent of significant fiscal stress, skilled manpower deficit, young population vulnerability, child-headed families, loss of family income, and high infant mortality and morbidity (Juru, 2024; Kassie et al., 2019). Although the overall impact of STIs, including HIV, has been negative globally, the burden has been far outsized in the Global South (Baltazar et al., 2020). The uptake of contemporary preventive methods such as condom use, pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP), STI testing and treatment, Human Papillomavirus (HPV) vaccination and partner services has been earmarked to induce positive change. This study examines how individual consciousness and indigenous culture predict the STI preventive behaviours in a Zimbabwean university context.

Despite evidence supporting a positive trajectory in reducing new infections globally, HIV still accounts for a global population mortality of 40.4 million so far (WHO, 2023). Meanwhile, the WHO African region remains the most affected (WHO, 2023). Although they are diverse, STIs often result in new HIV infections, culminating in the Acquired Immune Deficiency Syndrome (AIDS). An estimated 630,000 deaths in 2022 were caused by HIV-related morbidity (WHO, 2023). There were approximately 39.0 million people living with HIV at the end of 2022, with 1.3 million becoming newly infected in 2022 (WHO, 2023). In the WHO African region, there were 25.6 million people living with HIV by 2022. Furthermore, the region accounts for over 50% of all new global infections (WHO, 2023). Furthermore, an estimated 0.7% of the young population (15–49 years) is living with HIV, a worrying statistic in the young adult cohort, who, in contrast, have been strongly anticipated to spearhead a significant breakthrough in biophysical sustainability (Dangaiso, 2023; Muposhi et al., 2015). More than 50% of the African population endures abject poverty, constrained healthcare infrastructure, acute medical supply shortages, understaffed healthcare facilities, distant healthcare centers, a shortage of specialist medical professionals, and disenfranchised roads and communication network (Jaravaza et al., 2023). Most African economies are fiscally constrained in implementing effective health promotion programmes (Dangaiso et al., 2023), underscoring the need to reinforce preventive actions by contextually realigning behaviour change models.

Exploring the theoretical proposition of this paper, diverse frameworks have been employed to explain health behaviors in the extant literature. These are mainly the theory of planned behavior (TPB) (Ajzen, 1991), stages of change model (Prochaska & DiClemente, 1983), social cognitive theory (Bandura, 1986), health belief model (Rosenstock, 2000), social learning theory (Bandura, 1977) and the theory of reasoned action (Ajzen & Fishbein, 1980). Drawing from the cultural determinism theory (Boas, 1963), this paper argues that these frameworks do not sufficiently explain social behaviors in any cultural context. Human behavior is a complex construct mediated through specific social environmental contexts (Jaravaza & Saruchera, 2022; Leung & Bond, 2004). Foundational aspects of the African society and health culture shaping social interactions such as the Ubuntuism and native religiosity have been largely ignored in health promotion research. While universities are a rich African social context, endowed with a young adult population entrusted as sustainability stewards, previous studies show that they have high STI prevalence rates (Kassie et al., 2019; Nkomazana & Maharaj, 2014). This study extends the theory of planned behaviour (TPB) with Ubuntu orientation and native religiosity to predict STI preventive behaviours in Zimbabwe. It covers the introduction, theory, methods, results, discussion and conclusions.

Theory

Primarily, this study is underpinned by the theory of planned behavior (TPB) (Ajzen, 1991). The TPB was developed from the Theory of Reasoned Action (TRA), which establishes that attitudes and subjective norms are the two antecedents of behavioral intention and subsequent behavior (Ajzen &

Fishbein, 1980). The TRA postulated that behavioral intention is explained by personal attitudes and subjective norms, and that behavioral intention predicts actual behavior. Ajzen (1991) later added perceived behavioral control to the theory, arguing that it influences both behavioral intention and actual behavior. Thus, the TPB espouses that the three determinants of behavioral intention are attitudes, subjective norms and perceived behavioral control. Perceived behavioral control and behavioral intention predict actual behavior. We further explore these constructs in the formulation of the research hypotheses.

Second, this study draws from the cultural determinism framework to theoretically ground the proposed extension to the TPB. The cultural determinism theory was coined by Franz Boas (1858–1942). The fundamental tenets of the theory are cultural shaping, environmental influence, and cultural variability (Boas, 1963). His theory posited that these cultural influences critically shape human behavior. Second, the theory opined that environmental influences are central to regulating human behavior. The cultural determinism theory also adds cultural variability, acknowledging that cultural values, norms, and beliefs are diverse across social contexts (Boas, 1963). This theory underpins this study's conceptualization of Ubuntu orientation and native religiosity as key indigenous cultural axioms that potentially shape health behaviors in sub-Sahara African communities.

Attitudes were defined as a predisposition to like or dislike a person, object, behavior, or entity. The TPB proposes that attitudes are an antecedent of behavioral intention (Solomon, 2014). Attitudes develop from experiences, word-of-mouth referrals, mass media exposure, and inherent personal beliefs (Lee & Kotler, 2016). A positive attitude towards a behavior causes an individual to like to adopt that behavior, while a negative attitude towards a behavior causes one to dislike a behavior and, hence, the intention to adopt (Dangaiso et al., 2023). Given that extant literature supports that personal attitudes are a key determinant of behavioral intention (Dangaiso, 2023; Dilotsotlhe & Akbari, 2021; Purwanto et al., 2022; Siripipatthanakul et al., 2023), this study proposes that;

H1: Health attitudes positively influence behavioral intention to prevent STIs among Zimbabwean university students.

Subjective norms were defined as informal and unwritten codes of social behaviors that regulate human conduct for persons belonging to a defined group (Ajzen, 1991, Ajzen, 2020; Ajzen & Fishbein, 1980). Humans seek gratification through their social approval and belonging. Human beings have a higher propensity to adopt decisions approved by their friends, family, and reference groups (Umar et al., 2022). Further, if a person's social grouping approves the adoption of preventive health behavior against STIs (e.g. partner services, condom use, PrEP, PEP, screening or vaccination), the person is more likely to develop adoption intentions. Empirical studies have reported the positive influence of group norms or peer influence on behavioral intention (Dangaiso, 2023; Dilotsotlhe & Akbari, 2021; Purwanto et al., 2022; Siripipatthanakul et al., 2023; Umar et al., 2022). Therefore, this study proposes that;

H2: Peer influence positively influences Zimbabwean university students' behavioral intention to prevent STIs.

Perceived behavioral control refers to the belief that they will be able to successfully execute and manage the consequences of a prescribed behavior (Ajzen, 1991, 1991). It is the perceived self-efficacy that one has in their ability to handle the execution of their intended course of action (Rosenstock, 2000). Furthermore, it also refers to the ability to sustain the prescribed behavior given time, resources and human constraints that impede its adoption (Dangaiso et al., 2023). If a person believes that they will be able to contain STI preventive measures such as abstinence, faithfulness, consistent condom use, PrEP, PEP, HPV vaccination, STI screening and treatment or partner services, then they will develop an adoption intention. Several studies show that perceived behavioral control has an effect on the intent to adopt a given behavior (Abdullahi et al., 2021; Dangaiso, 2023; Dangaiso et al., 2024; Dilotsotlhe & Akbari, 2021). Based on this empirical support, this study predicts that;

H3: Perceived behavioral control has a positive influence on behavioral intention to prevent STIs among Zimbabwean university students.

This study extends the TPB with foundational indigenous cultural constructs that have been inherently situated in the sub-Saharan African social environmental context. First, *Ubuntu*, *Unhu* or *Hunhu* define a native African cultural philosophy that embodies collective pride, restraint orientation, trustworthiness, care and compassion (Chigangaidze et al., 2022; Jaravaza et al., 2025). Its ethnic roots can be traced throughout Africa: Angola (*gimuntu*), Botswana (*muthu*), Burundi (*Ubuntu*), Congo (*bantu*), Kenya (*munto*), Malawi (*Umunthu*), Mozambique (*vumuntu*), Namibia (*omundu*), Rwanda, South Africa (*ubuntu*), Tanzania, Uganda (*obuntu*), Zambia (*umunthu or ubuntu*) and Zimbabwe (*Ubuntu or Hunhu*) (Chigangaidze et al., 2022; Mugumbate et al., 2024). While its translation into Western epistemological thought may not be straightforward, Ubuntuism is an indigenous African cultural philosophy that is built on the foundations of societal oneness, self-awareness, social justice, empathy, regard for the common good, and preservation of African humanity in current and future generations (Tarkang et al., 2018). Ubuntuism is a meta-concept that defines the African worldview, encompassing a relational perspective in which one's identity is inextricably connected to the well-being of the whole—*I am because we are*.

In native Ndebele/Shona speaking Zimbabwean communities, *Ubuntu/Hunhu* depicts individual well-roundedness and right-manneredness, respectively (Chigangaidze et al., 2023). The *Ubuntu* philosophy indoctrinates children and young adults to respect their society, desist from norm violating behaviors, such as sex with minors, multiple intimate relationships, and gender-based violence (Jaravaza & Saruchera, 2022). Contradistinguished from individualistic cultures, this collectivist philosophy raises the society's cognisance of preserved African values that are the mainstay of individual and societal longevity (Chigangaidze et al., 2022; Ngondo & Klyueva, 2022). Backdating from pre-colonial Zimbabwe, Ubuntuism was observed as a sacred cornerstone for community sustenance, guided by mutual respect, altruism, emotional intelligence, and compassion (Mugumbate et al., 2024; Tarkang et al., 2018). However, within country diversity has potentially influenced African communities' gradual weaning of natives' reliance on traditional values and methods (Mabovula, 2011). Ubuntu is expected to value sexual diversity, mutual respect and cultural plurarism, thus, practicising it underscores equittable health promotion for both heterosexual and LGBTQ+ people. While the ethos of Ubuntuism implies that societal members must safeguard themselves and others from illnesses, there is limited research evidence exploring how health promotion strategies could leverage Ubuntuist foundations to shape STI preventive health behaviors. Thus, this study formulated the following hypothesis;

H4: Ubuntu orientation has a positive influence on behavioral intention to prevent STIs among Zimbabwean university students.

African religiosity defines a native spiritual orientation, whose existence backdates to the pre-colonial era among the native African states of the Bantu people in Southern and Central Africa (Samuel, 2023; Zulu, 2013). While Ubuntuism relates to human interactions and relationships in society, religiosity dwells on relations in the supernatural realm. In this native faith within indigenous sub-Saharan communities, people believe in a supernatural spiritual supremacy, *Musikavanhu* (native Shona, Zimbabwe) or *Unkulunkulu* (native Ndebele, Zimbabwe, and Isi Zulu, South Africa), guiding and protecting them through the hierarchy of their ancestral spirits, who watch their descendants over (Mbiti, 1969). *Musikavanhu* translates to mankind or human creators, whereas *Unkulunkulu* conveys the greatest grandfather or highest ancestral throne. The faith holds that *Musikavanhu/Unkulunkulu*—like God in Christianity–determines the fate of the person, family, society, and nation. Their values uphold that natives should conform to grounded spiritual principles—obedience, self-regulation and social integrity by desisting from behaviours such as unconsensual sex, intimacy among minors, sex among relatives, and multiple concurrent partnerships. Other immoral acts are believed to include stealing, witchcraft, refusing to work, and parental or societal disobedience (Chigangaidze et al., 2022; Mbiti, 1969; Zulu, 2013).

Collectively, these were believed to constitute societal deviance, hence associated with reciprocal misfortunes linked with the supernatural *Musikavanhu* (Jaravaza & Saruchera, 2022; Mbiti, 1969). Societal behaviours such as having multiple concurrent relationships were strongly linked to problems such as ill health and death (Zulu, 2013). Although the framing of these health norms was religious, desisting from these behaviours could simply improve one's preventive actions and overall health. Meanwhile, the literature is replete with studies examining the behavioral implications of African religiosity on important behavioral dispositions, including health behaviors (Tarkang et al., 2018). Given the imperative to

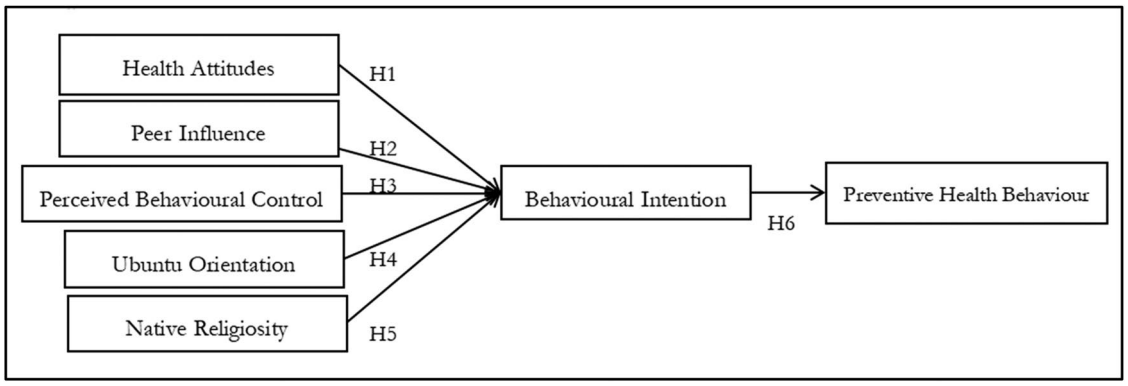

Figure 1. Proposed research model. *Source:* Research model (extended from Ajzen, 1991).

incorporate indigenous cultural perspectives in health promotion theory and practice as a pathway for mainstreaming preventive health actions, this study proposed that;

H5: Native African religiosity has a positive influence on behavioral intention to prevent STIs among Zimbabwean university students.

Several behavioral theories support that behavioral intention precedes actual behavior, such as the TPB (Ajzen, 1991), TRA (Ajzen & Fishbein, 1980), and several variants of the TAM frameworks (Venkatesh et al., 2003). Diverse empirical studies support that before the execution of a desired course of action, an intention to perform the behavior develops, which propels the person to execute the actual behavior (Alaiad et al., 2019; Dilotsotlhe & Akbari, 2021; Siripipatthanakul et al., 2023). Before a person adopts a behavior, they first develop the belief that they must perform the behavior and that the inner drive stimulates the desired action (Dangaiso et al., 2023, 2024). If one has a behavioral intention to prevent contact with STIs, that intention subsequently triggers STI-preventive behaviors. Given this, the current study also proposed the following;

H6: Behavioral intention to prevent STIs has a positive and significant effect on STI preventive health behaviors.

Figure 1 illustrates the proposed model.

Method

Design, population and sampling

The purpose of this study was to examine the antecedents of Zimbabwean university students' behavioral intentions and subsequent STI-preventive behaviors. Guided by the positivist research philosophy, an explanatory design was employed, informing the adoption of a quantitative research approach (Saunders et al., 2018). This study targeted 16,400 students students at two public universities in Zimbabwe. Through a random sampling procedure, unique numbers were assigned to every participant on the student classlists and a random number generator was used to pick 350 participants, of which 303 returned, a response rate of 86.2%. After preliminary analyses, 274 cases were adequate for SEM (Kline, 2023). Sample size determination was based on the sizes adopted in related studies, data analysis methods, number of variables, completion rates and resource constraints (Hair et al., 2020; Kline, 2023).

Instrumentation

The measurement scales used in this study were adopted and modified from previous studies. These were health attitudes, peer influence, perceived behavioral control (Dangaiso, 2023; Dilotsotlhe & Akbari, 2021), Ubuntu orientation (Jaravaza & Saruchera, 2022), native religiosity (Jaravaza et al., 2025); behavioral intention, and preventive health behavior (Dangaiso, 2023; Dilotsotlhe & Akbari, 2021). The instrument was subjected to a pilot study involving 20 students for refinement. With a minimum of three

observed items, all constructs were measured on a 7-point Likert scale from strongly disagree (1) to strongly agree (7).

Data collection procedure and ethical compliance

Ethical approval was obtained from Chinhoyi University of Technology (CUT): (Ref-CUT/19/3/25). As the study involved human participants, the study was compliant to the Declaration of Helsinki. Fundamentally, it provides a framework of ethical research standards that uphold respect for humans, the right to make an informed participation and the recognition of vulnerable groups. The participants were informed that participation was voluntary and had the right to withdraw. Further, no incentives were provided. Furthermore, all participants provided written consent prior to their participation. Safeguarding protocols for sensitive questions if distress arose included participant withdrawal, providing clear reporting lines and a referral pathway for counselling services and post-survey debriefing. To mitigate social desirability bias, the instrument was self-administered and the fieldworkers were well trained and experienced. The collected data were free from personally identifiable information, and privacy and confidentiality were maintained through data collection, analysis, and reporting. All the researchers' actions were strictly guided by the scope of the approved research objectives.

Data analysis methods

A two-step analysis procedure involving Confirmatory Factor Analysis (CFA) and structural equation Modelling was followed (Anderson & Gerbing, 1988). Convergent validity was assessed using the Average Variance Extracted (AVE) and discriminant validity by comparing the magnitude of the inter-construct correlations and square roots of the AVEs for each pair of constructs (Fornell & Larcker, 1981). Construct reliability was examined using composite reliability (Nunnally & Bernstein, 1994). To assess the model fit, we used absolute, incremental, and parsimonious model fit indices. These were the ratio of chi-square to degrees of freedom (CMIN/df or x^2/df), Goodness of Fit Index (GFI), standardized root mean residual (SRMR), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), Parsimonious Comparative Fit Index (PCFI), and Parsimonious Normed Fit Index (PNFI) (Byrne, 2013).

Results

Sample characterisation

Demographic profiles of the respondents who participated in the study were analyzed. The results for the sample profile are shown in Table 1.

Table 1. Demographic profile of respondents.

Variable	*Category*	*Frequency*	*Percentage (%)*
Gender	*Female*	*140*	*51.1*
	Male	*134*	*48.9*
Age	*18–23 years*	*139*	*50.7*
	24–28 years	*61*	*22.3*
	29–33 years	*37*	*13.5*
	34–38 years	*28*	*10.2*
	39 years and above	*9*	*3.3*
Marital Status	*Single*	*203*	*74.1*
	Married	*62*	*22.6*
	Divorced	*2*	*0.7*
	Not interested	*7*	*2.6*
School/Faculty	*Arts*	*69*	*25.2*
	Commerce	*88*	*32.1*
	Education	*54*	*19.7*
	STEM Sciences	*33*	*12*
	Agriculture	*30*	*10.9*
Race	*Black African*	*274*	*100*

Source: Primary data.

Table 2. Discriminant validity—the HTMT criterion.

Construct	*HAT*	*REL*	*PBC*	*UBU*	*BIN*	*PHB*
PIN	*0.810*	*0.837*	*0.845*	*0.697*	*0.702*	*0.767*
HAT		*0.749*	*0.865*	*0.691*	*0.672*	*0.817*
REL			*0.801*	*0.730*	*0.686*	*0.863*
PBC				*0.685*	*0.765*	*0.803*
UBU					*0.725*	*0.643*
BIN						*0.629*

HAT: Health Attitudes; PIN: Peer Influence; PBC: Perceived Behavioural Control; UBU: Ubuntu Orientation; REL: Native Religiosity; BIN: Behavioural Intention; PHB: Preventive Health Behaviour

From Table 1, it can be seen that all respondents were of Black African descent and there were slightly more females than males. Most of the respondents were young adults in their early 20s. The majority were single, and Commerce, Arts and Education faculties had more participants.

Assessment of the measurement model

The measurement model was examined through a Confirmatory Factor Analysis (CFA) using AMOS. CFA examines whether the hypothesized factor structure reproduces the model, as implied by the sample variance-covariance matrix (Byrne, 2013). The CFA model produced a very good fit for the sample data (x^2/df = 3.1, GFI = 0.912, SRMR = 0.041, RMSEA =0.053 CFI = 0.960, NFI =0.956, TLI = 0.958, PCFI = 0.843, PNFI = 0.825). Thus, there were no significant discrepancies between the proposed measurement model and the sampled-data-implied model (Byrne, 2013). The magnitude and significance of factor loadings satisfied unidimensionality. All factor loadings were greater than 0.5, and all *t*-statistics were significant (Hair et al., 2019). In addition, the Average Variance Extracted (AVE) values for all constructs were greater than 0.5. At least 50% of the variance in the observed variables was accounted for by each latent construct (Fornell & Larcker, 1981),confirming convergent validity. To establish discriminant validity, we compared the inter-construct correlations and the square roots of the AVEs for each pair of constructs (Fornell & Larcker, 1981). Accordingly, the correlations were less than the square roots of the AVEs. In support, the Heterotrait-Monotrait (HTMT) ratio of correlations were less than 0.9 (0.629–0.865) (Henseler et al., 2015), as shown in Table 2. Composite reliability values were greater than 0.7, therefore construct reliability was confirmed (Nunnally & Bernstein, 1994). To check Common Methods Variance (CMV), we used Harman's single factor test and no factor explained 50% of the total variance (Hair et al., 2019). Table 3 shows the psychometric properties of the measurement model and Table 4 presents the Fornell-Larcker assessment of discriminant validity.

Structural equation modelling and hypotheses testing

The proposed model was estimated using SPSS AMOS to examine the statistical significance of the structural relations. Assessing normality, skewness and kurtosis values were between −2 and +2, hence a parametric test in SEM was performed (Hair et al., 2019). Further, the Variance Inflation Factor (VIFs) ranged between 1.643 and 4.734, hence there were no collinearity problems (Hair et al., 2019). The model was evaluated on three criteria: model fit, statistical significance of causal paths, and model R-squared (Al-Fraihat et al., 2020; Hair et al., 2019). In terms of model fit, the indices were—(x^2/df = 3.0, GFI = 0.926, SRMR = 0.041, RMSEA =0.052, CFI = 0.962, NFI =0.957, TLI = 0.958, PCFI = 0.845, and PNFI = 0.824). Based on the recommendations of Anderson and Gerbing (1988), Byrne (2013) and Kline (2023), the model obtained a very good fit.

Second, we evaluate the causal links between the constructs in the model using path coefficients, t-statistics, and p-values. At the 5% significance level, t-values greater than 1.97 and *p* values less than 0.05 denoted statistically significant relationships. The path between health attitudes and behavioral intentions had the strongest positive and significant effect ($\beta = 0.787$, $t = 12.451$, and $p < 0.01$. Peer influence also had a positive significant effect, as confirmed by a β estimate of 0.276, a t-value of 6.485, and $p < 0.01$. The causal path between perceived behavioural control and behavioral intentions had a modest positive and statistically significant relationship ($\beta = 0.176$, $t = 5.696$, $p < 0.01$). Furthermore, the effect of Ubuntu orientation on behavioral intention was positive and significant, as evidenced by a $\boldsymbol{\beta}$ coefficient

Table 3. Psychometric properties of the measurement model.

Construct/observed items	Standardised loading	Average variance extracted	Composite reliability
Health Attitudes		0.809	0.927
HAT1: Sexual and reproductive health is high on my priorities	0.870		
HAT2: Taking STIs/HIV combination prevention is important for my health	0.880		
HAT3: I like educating others about responsible health decisions on STIs/HIV prevention	0.947		
Peer Influence		0.818	0.930
PIN1: My friends support WHO recommended HIV combination prevention methods	0.912		
PIN2: I often seek advise from peers on good sexual and reproductive health actions	0.900		
PIN3: I consider group values when making decisions about HIV prevention methods	0.901		
Perceived Behavioural Control		0.606	0.818
PBC1: I cope well with STI/HIV combination prevention methods	0.866		
PBC2: Using recommended STI/HIV prevention methods is easy for me	0.842		
PBC3: STI/HIV prevention methods that I like are easily accessible for me	0.600		
Ubuntu Orientation		0.830	0.937
UBU1: I have a shared responsibility to preserve the good health of our others	0.899		
UBU2: I adopt recommended health practices as shared within my community	0.885		
UBU3: I was raised to respect the good health of all community members	0.949		
Native Religiosity		0.626	0.830
REL1: My indigenous faith keeps my sexual conduct under check all the time	0.886		
REL2: African beliefs help me safeguard recommeded health related behaviours	0.834		
REL3: My native spirituality regulates sexual conduct among community members	0.630		
Behavioural Intention		0.698	0.874
BIN1: I intend to adopt ways of preventing STIs/HIV infections	0.840		
BIN2: Adopting WHO recommended STIs/HIV combination prevention methods is important for my health	0.847		
BIN3: I would like to preserve my health through recommended methods	0.818		
Preventive Health Behaviour		0.709	0.879
PHB1: I use WHO recommended STIs/HIV combination prevention methods all the times	0.786		
PHB2: Adopting STIs/HIV prevention methods was one the best decisions I ever made	0.892		
PHB3: Using WHO recommended STIs/HIV combination prevention methods remains my long-term health decision	0.845		

Source: Primary data.

Table 4. Discriminant validity—the Fornell-Larcker criterion.

Construct	HAT	PIN	PBC	UBU	REL	BI	PHB
HAT	**0.899**						
PIN	0.521	**0.904**					
PBC	0.496	0.703	**0.778**				
UBU	0.568	0.534	0.602	**0.911**			
REL	0.604	0.612	0.607	0.586	**0.791**		
BI	0.542	0.528	0.571	0.618	0.433	**0.835**	
PHB	0.416	0.475	0.637	0.609	0.594	0.621	**0.842**

HAT: Health Attitudes; PIN: Peer Influence; PBC: Perceived Behavioural Control; UBU: Ubuntu Orientation; REL: Native Religiosity; BIN: Behavioural Intention; PHB: Preventive Health Behaviour.
Notes: The square root of AVEs on the diagonal; construct correlations are below the diagonal.
Source: Primary data.

of 0.498, a t-value of 7.108, and $p < 0.01$. The last predictor in the model, native religiosity, had a positive and significant influence on behavioral intention ($\beta = 0.292$, $t = 5.742$, $p < 0.01$). Based on these outcomes, we accepted H1, H2, H3, H4, and H5. The predictive validity of the indigenous constructs, Ubuntuism and native religiosity, was empirically supported in the context of STIs prevention. The ultimate hypothesis (H6) predicted that behavioral intention positively and significantly influences STIs preventive behaviors. This proposition was supported ($\beta = 0.629$, $t = 10.630$, and $p < 0.01$). The results of hypothesis testing are presented in Table 5.

Third, we evaluated the model based on the R-squared. As shown on the path diagram, the proposed model explained 58.9% ($R^2 = 0.589$) of the variability in behavioral intention to prevent STIs and 39.6% ($R^2 = 0.396$) of the variability in STI-preventive behaviors. Figure 2 shows the SEM path diagram.

Table 5. Outcomes of hypothesis testing.

Hypothesis and causal path	*Estimate*	*t-value*	*p value*	*Decision*
H1: Health attitudes Behavioural intention	*0.787*	*12.457*	***	*Supported*
H2: Peer influence Behavioural intention	*0.276*	*6.485*	***	*Supported*
H3: Perceived behavioural control Behavioural intention	*0.176*	*5.696*	***	*Supported*
H4: Ubuntu orientation Behavioural intention	*0.498*	*7.108*	***	*Supported*
H5: Native religiosity Behavioural intention	*0.292*	*5.742*	***	*Supported*
H6: Behavioural intention Preventive health behaviour	*0.629*	*10.630*	***	*Supported*

Notes: *** $p < 0.01$.
Source: SPSS AMOS Output.

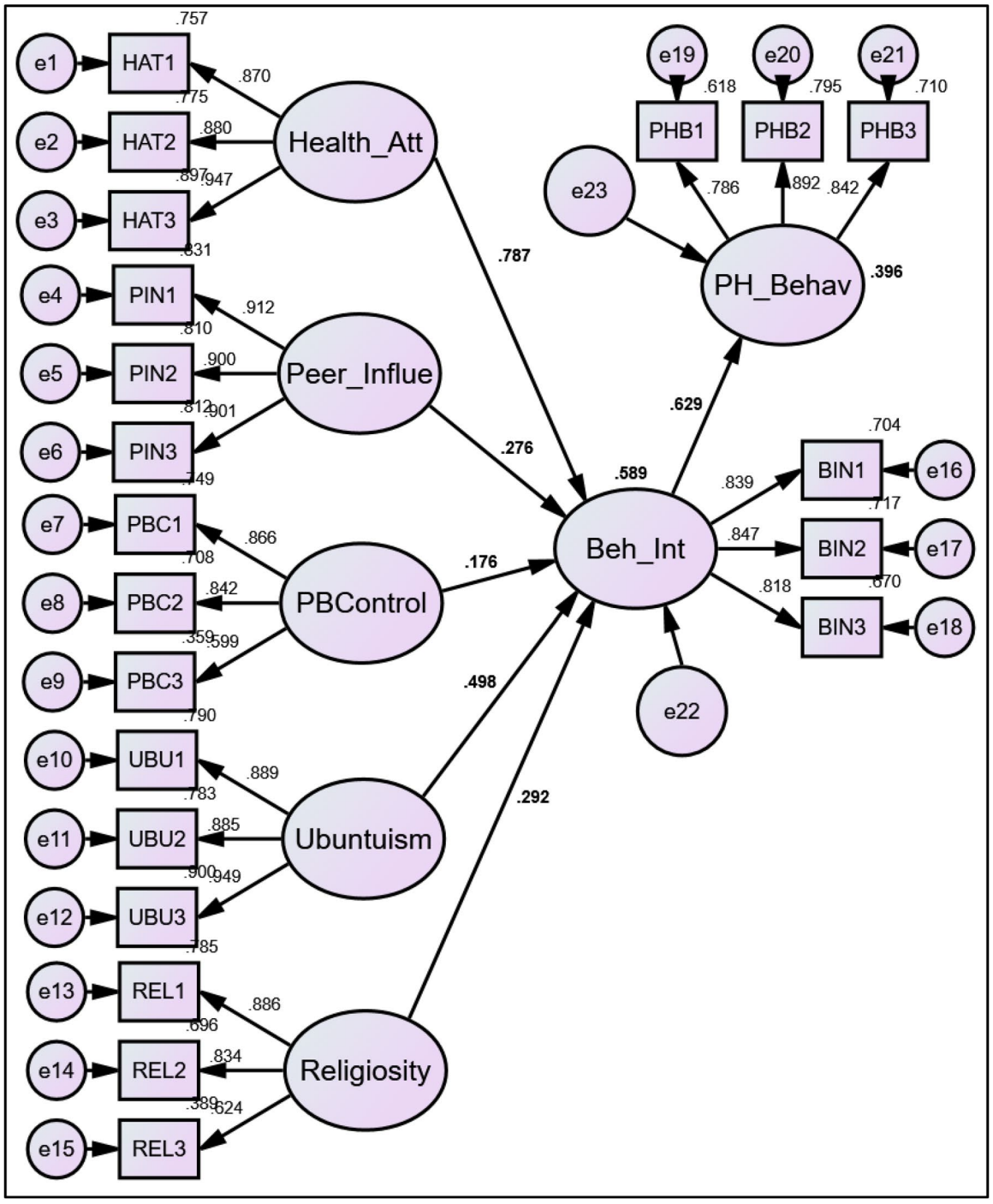

Figure 2. SEM path diagram. *Source:* Survey data.

Discussion

The findings demonstrated in this study validated the constructs of both the TPB and indigenous culture as predictors of behavioral intention to prevent STIs and subsequent health behavior. The influence of health attitudes on behavioral intention was positive and significant ($\beta = 0.787$, $t = 12.457$, $p < 0.01$), and H1 was supported. The effect of personal attitudes on behavioural intention has also been reported by Dangaiso (2023), Dilotsotlhe and Akbari (2021) and Purwanto et al. (2022). This indicates that individuals' beliefs and attitudes towards their health are key factors that stimulate their intention to adopt prevention methods such as PEP, condom use, PrEP, STI vaccination, screening and treatment. Thus, health promotion should target educating young adults, especially university students, so that they develop positive attitudes and personal beliefs towards their sexual and reproductive health and combination preventive behaviors.

H2 predicted that peer influence would positively impact behavioral intention, and the results confirmed the hypothesis ($\beta = 276$, $t = 6.485$, $p < 0.01$). Prior empirical studies that adopted the TPB also confirmed that subjective norms influence behavioral intention (Abdullahi et al., 2021; Dilotsotlhe & Akbari, 2021; Siripipatthanakul et al., 2023). The findings show that individuals develop an intention to prevent STIs when given peer support and trusted recommendations from acquaintances. If a student adopts and recommends STI screening, PrEP, vaccination or partner services, their peers are more likely to embrace its usage. Thus, to motivate the adoption of combination prevention methods among young adults, health promoters should target social affiliations and groupings—through word of mouth and peer trust on sensitive topics such as sexual and reproductive health, recommended actions are more apt to be adopted.

The relationship between perceived behavioural control and behavioural intention was also positive and significant ($\beta = 0.176$, $t = 5.696$, $p < 0.01$), leading to the acceptance of H3. Alternative theories conceptualize PBC as self-efficacy—the conviction or self-belief that one has about their ability to successfully execute a desired health action (Rosenstock, 2000). Previous studies have shown that self-efficacy influences individuals' intentions to adopt a behavior (Dangaiso, 2023; Purwanto et al., 2022; Umar et al., 2022). If one has a strong conviction that they can cope with adopting measures such as contraception, partner services, condom use, PrEP, PEP, STI testing, vaccination and treatment, one is more likely have an intention to adopt them. To encourage adoption of STIs preventive behaviors, health promoters should invest more in health education so that young adults have knowledge about primary prevention methods and how to execute them, which would significantly enhance their adoption.

This study integrated individual consciousness theory with indigenous cultural axioms to predict STIs preventive behaviors. H4 proposed that Ubuntu orientation positively influences behavioral intention to prevent STIs, and this hypothesis gained empirical support ($\beta = 0.498$, $t = 7.108$, $p < 0.01$). Although no prior research has reported links between Ubuntu and STIs prevention in African societies, recent studies have reported its impact on inducing COVID-19 and HIV/AIDS care behaviors (Chigangaidze et al., 2022; Tarkang et al., 2018). Broadly, the core tenets of Ubuntuism conceptually synchronize with the adoption of recommended health behaviors; hence, practising Ubuntu unlocks solidarity, transcending individuality, extending kinship and a more collective orientation to healthcare and wellness. Thus, to motivate the adoption of STI prevention methods (e.g. PEP, condom use, vaccination and screening) among young adults of diverse sexual orientations, healthcare marketing messages should infuse local cultural values that epitomise empathy, altruism, care, compassion, and emotional intelligence, leveraging collective mental cultural programming to stimulate desired health intentions and actions.

H5 predicted that native African spirituality—religiosity–would have a positive effect on behavioral intention to prevent STIs contact. Given that native religiosity embeds sacred values with important behavioral connotations on society, we proposed that African spirituality would trigger behavioral intentions to conform to community health values, rights and sexual conduct; hence, intentions to avoid STIs contact. Although no previous studies suggest this proposition, our findings support this hypothesis ($\beta = 0.292$, $t = 5.742$, $p < 0.01$). Native religiosity has been envisaged to transform public health theory and practice within social work, grounded in African epistemology in previous research (Chigangaidze et al., 2022; Mugumbate et al., 2024; Tarkang et al., 2018). Current results show that conformance to societal longevity norms positively syncs with STIs prevention. The findings imply that health promotion in young

adult population cohorts needs to integrate foundational spirituality in their sexual and reproductive health education interventions in such a manner that in triggers the 'inner' African self that regulates instinctive desires, impulsive decisions and values community health.

Finally, H6 proposed that behavioral intention positively influences preventive health action. This hypothesis was supported ($\beta = 0.629$, $t = 10.630$, $p < 0.01$). Grounded in diverse behavioral theories, the link between intention and subsequent behavior has also been empirically supported in diverse contexts (Alaiad et al., 2019; Dangaiso et al., 2024; Dilotsotlhe & Akbari, 2021; Purwanto et al., 2022). In this context, when one develops the intention to engage in STIs preventive measures such as condom use, PrEP, partner services, PEP, vaccination and treatment, the execution of the desired health action follows that decision. However, it has also been noted that behavioral intention may always trigger the behavior in other contexts, e.g. green purchase intention and green buying behaviors; (Davari & Strutton, 2014; Johnstone & Tan, 2015) hence, behavioral reinforcement may be useful especially in sensitive health subjects. This implies that health promoters need to remind, reinforce, and reinvigorate the health benefits embedded in their health messages and expedite follow-up initiatives to overcome internal cognitive appraisals that one may undergo regarding whether they should proceed with execution of the recommended health actions or not.

We further discuss implications for healthcare marketing, clinical practice and theory drawn from this study. Theoretically, this paper integrates constructs from the TPB, extending with indigenous culture in sub–Saharan Africa to model young adults' STI preventive behaviors. In line with the cultural determinism theory, the present study highlights that human behavior theories could be incomplete without incorporating local culture. As human behavior is largely shaped by social dynamics, including culture, it could be partially explained by the underlying cultural perspectives. Therefore, this study opens fertile avenues for theoretical integration between several behavioral theory models and cultural variables that inherently explain human dispositions in diverse situations. As the deep-rooted Ubuntu orientation and African religiosity extend beyond Zimbabwe into Southern, Central and Western Africa, the model adopted in this study may require further empirical validation in other populations within sub-Saharan Africa. Such locally designed or extended frameworks could explain why diverse populations exhibit behavioral variations in key issues such as public health.

Against the backdrop of relatively poor health infrastructure, donor-dependent healthcare funding, and unwelcome WHO African region STI and HIV/AIDS prevalence and mortality statistics, this study implores further work in health promotion initiatives that embed indigenous cultural themes and values that stimulate preventive behaviors, especially in young adults. To mitigate the outsized effects of STIs, especially HIV/AIDS, in the sub-Saharan African region, more work is necessary to reinforce STIs prevention, especially the more effective combination prevention methods given in this paper. Health marketing messages should seek to develop positive health beliefs to shape good attitude formation, target groups to build social appeals, and improve individual self-efficacy to execute desirable health actions. Further, given the findings reported in this study, the adoption of culturally responsive and locally designed initiatives that can alleviate local community health problems is imperative. Integrating human consciousness theory with indigenous culture provides a key point of action in the domain healthcare marketing. Thus, this study recommends that health practitioners, promoters, and marketers should consider incorporating indigenous cultural themes in their targeted health messages that reinforce cultural emphasis on emotional intelligence, personal responsibility, collective stewardship, restraint behaviors, and societal longevity.

Further, clinical implications of this study could include incorporating culturally responsive clinical practice in the sub-Saharan region. Emphasising care and compassion through improved nurse-patient relationships, culturally relevant care plans, addressing inequalities and enhanced patient outcomes with stronger community integration could strengthen the impact of health promotion practices among health professionals. While Ubuntu necessitates the need for mutual respect and diversity within multicultural societies, inclusion and constant support for diverse sexual orientations in Africa, especially LGBTQ+, remains critical for more equitable healthcare. Reinvigorating Ubuntu and religiosity in African health theory and practice calls for the integration of culturally responsive healthcare practices not only in Africa but in other regions.

However, the study had a few limitations that could suggest avenues for further research. First, the generalisability of the findings from a culturally responsive study where responses were drawn from a student sample from two institutions may be limited. However, the students were chosen as a representation of the young adult populations, who have been subject to intense sustainability marketing campaigns and research. Although they are identified as sustainability stewards, further studies may use other cohorts that were not sampled in the current study. More diverse populations are needed in other contexts to understand how peculiar cultural orientations are aligned to health promotion practices. Second, this study was cross-sectional and data were collected in a snapshot at a single point in time. However, a longitudinal design could provide more insights into participants' cultural evolution and how they could shape their propensity to adopt the recommended health actions. Future studies could adopt longitudinal designs in this area so that behavioral changes can be tracked over time and how the data could predict future trends in health behaviors and projections on STI prevalence. Finally, we also present a limitation on the use of a mono-quantitative approach in this study. Health behaviors are socially mediated, thus, a qualitative enquiry could enhance in-depth understanding of human motivations for health actions. Thus, further studies should adopt mixed designs to capture more balanced perspectives.

Conclusions

This study extended the theory of planned behavior with the indigenous cultural constructs of Ubuntu orientation and native religiosity to predict behavioral intention and subsequent STI preventive behaviors of young adults. Previous research on the determinants of preventive health behaviors has largely ignored indigenous African cultural axioms as instinctive triggers for desirable health actions. The findings of this research confirm that human consciousness and indigenous cultural constructs both shape health behaviors in the sub-Saharan African context, demonstrating that leveraging cultural appeals in public health communication could promise substantial behavior change in the domain of public health, especially in STIs prevention in young demographic cohorts. Although established behavioral theories have largely explained human preventive actions against infections, this study demonstrates that incorporating indigenous factors, such as underlying cultural and religious themes and artifacts, could enhance the development of deeper understanding and better appeals towards the adoption of recommended health actions. Health promotion should, therefore, seek to remind and reinforce these indigenous values as they can be leveraged to stimulate health behavior change; thus, health practitioners and promoters working with diverse populations globally may need to examine the underlying cultural values and distil themes that emphasize more sustainable behaviors, community health, and wellness. Furthermore, this study potentially contributes to advancing research aligned to the Sustainable Development Goals (SDGs). This is enhanced through promotion of good health and well-being (SDG3), quality health education (SDG4), reducing health inequalities (SDG10), and collaborative partnerships (SDG17), through mutually beneficial collaborations within indigenous communities.

Acknowledgements

The authors would like to thank all the participants for their responses and the time taken to participate in this study.

Authors contributions

Phillip Dangaiso: Conceptualization; Data curation, Formal analysis; Investigation; Methodology; Project administration; Software; Validation; Writing- original draft.

Brighton Nyagadza: Conceptualization; Methodology; Writing- review and editing; Project administration.
Constantino Pedzisai: Validation; Writing- review and editing.
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Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The authors received no funding for this research.

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Data availability statement

The materials and data used in this study are available from the corresponding author upon request.

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