

5-30-2013

Assessing the Influence of Exposure to Violent Living Condition, Knowledge, and Personal Motivation on HIV Prevention Behavior Among Historically Black College Students

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Mongkuo, Maurice, "Assessing the Influence of Exposure to Violent Living Condition, Knowledge, and Personal Motivation on HIV Prevention Behavior Among Historically Black College Students" (2013). *Government and History Faculty Working Papers*. Paper 16. http://digitalcommons.uncfsu.edu/govt_hist_wp/16

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ASSESSING THE INFLUENCE OF EXPOSURE TO VIOLENT LIVING CONDITION, KNOWLEDGE, AND PERSONAL MOTIVATION ON HIV PREVENTION BEHAVIOR AMONG HISTORICALLY BLACK COLLEGE STUDENTS

ABSTRACT

Aim: This study assesses the effects of prevention education, prevention personal motivation, prevention knowledge, and past exposure to violent living conditions on HIV prevention behavioral skills among historically black college and University (HBCU) students.

Study Design: Quasi-experimental One-shot Case Study Design.

Place and duration of study: Fayetteville State University; November 2012 to May 2013.

Methodology: Survey data of indicators of the four Information-Motivation-Behavioral skills (IMB) model's latent constructs prevention information or knowledge, prevention motivation, and prevention behavioral skills, and past exposure to violent living conditions (PEVLC) prevention was collected from students attending an HBCU. Exploratory principal component factor analysis and Cronbach's alpha test were performed to identify the factorial structure of the PEVLC questionnaire and reliability of the violent exposure subscales, respectively. Structural equation modeling analysis was performed to estimate the overall model fit indices and the magnitude of effects of prevention motivation, PEVLC prevention and prevention information or knowledge on the prevention behavior of the students.

Results: The analysis found that personal motivation to prevent HIV infection had a large positive and significant effect on HIV prevention behavior. Witnessing violence with weapons prevention and sexual violence prevention had a moderate, but insignificant effect on HIV prevention behavior. HIV prevention knowledge, witnessing violence prevention, and violence

victimization prevention had no meaningful effect on prevention behavior of HBCU students.

Conclusion: Collectively, these findings suggest that to be effective, the focus of HIV prevention programs in HBCUs may be on promoting personal motivation, and identifying and treating students who have been exposed to past weapon and sexual violent living conditions for post-traumatic stress disorder, rather than promoting HIV education.

Keywords: Violence exposure, Health risk behavior, HIV prevention, historically black colleges and universities, confirmatory factor analysis, exploratory factor analysis, HBCU, Information-Motivation-Behavioral Skills model, structural equation modeling, HIV prevention motivation.

INTRODUCTION

The continued rise in HIV infection among college students in the United States has become a major health concern. Despite increased investments in HIV prevention programs on college campuses in the United States, high risk sexual behavior continues to occur among college students [1,2,3]. Moreover, an examination of recent data indicate that while the trend in HIV infection seems to have stayed even or slightly reduced among college students in general, the trend among African American college students and African Americans aged 18-25 continues to rise [4,5]. Independent research indicate that the incidence and spread of HIV/AIDS and other sexually transmitted diseases among heterosexual college students attending Historically Black Colleges and Universities (HBCUs) in the United States continue to rise at an alarming rate, despite increased investment in HIV prevention programs aimed at reducing engagement in risky sexual behavior among students on college campuses [6,7,8,9,10,11,4,12,]. Qualitative studies suggest that the most salient barriers to HIV prevention among black college students are negative views of condoms, trust issues, spontaneity, young age, non-monogamous relationships,

and perhaps most important, lack of prevention behavioral skills [13,14,15,12]. Other researchers found that black college students are, for the most part, quite knowledgeable about HIV/AIDS, but this knowledge is not a predictor of safe sex among the college students [16,17,18,19,14].

HIV prevention programs are more likely to succeed when they are based on empirical evidence and theory [20,21]. Researchers have identified a number of factors that contribute to health risk behaviors. Among these factors are past exposure to violent living conditions and lack of lack of personal prevention motivation. Past exposure to violent living conditions (PEVLC) is witnessing or being a victim of excessive behavior such as fist fighting, shooting, muggings, robberies, gang-related deaths, sexual assault, etc. at home, school, community, workplace, television or the environment [22,23,24]. Personal motivation is conceptualized as personal attitudes towards performing preventive behavior [25,26]. In principle, behavioral skills refer to an individual's sense of self-efficacy necessary to engage in preventive behavior [25]. Thus, an individual would need to perceive that he or she possesses the behavioral skills necessary for health risk prevention.

With regards to past exposure to violent living conditions, a recent national study found that about 55% of urban adolescents have been exposed to some type of violence in their communities during their lifetime [27]. Other researchers found that the rate of violent exposure differ greatly depending on the type of violent exposure (e.g., witnessing a violent act, victim of a violent act or both), the type of population being assessed (e.g., children or adolescents), and geographic location (e.g. rural versus urban) [28]. Despite the widespread incidence of violence in the United States, its incidence has been found to be higher among racial minorities living in large, urban cities and within impoverished communities [29]. Moreover, official crime statistics

and homicide rates show that violence is higher among young males and racial minorities than their counterparts. For example, the Center for Disease Control and Prevention (CDC) reported that males aged 15-19 years are four times more likely than females to die from homicide. Additionally, in 2006, homicide rate for black teenage males was nearly 20 times (66.4% per 100,000) higher than the rate for white teenage males (3.4% per 100,000), twice more than Hispanic teenage males (28.4% per 100,000), 4 times more for American Indian teenage males (16.9% per 100,000), and 6 times more than Asian American teenage males (11.5% per 100,000) [30].

Numerous empirical studies have established a link between past exposure to violent living conditions and HIV infection risk behavior among youths [31,32,33,34,34,35,36,37,38]. With regards to an association between HIV personal prevention motivation and HIV risk behavior, past exploratory research have found a negative link between these two variables among Historically Black College students [16,26]. However, whether a causal link between these two constructs exist remains to be established.

With regards to the effect of personal motivation on risk behavior, various behavior models have been used to predict risk behavior among college students with the goal of designing effective HIV/AIDS education and prevention programs. One theoretical model that has proven useful in explaining HIV prevention behavior and other health-promoting behaviors and providing a useful framework for developing HIV prevention and promotion programs is the Information-Motivation-Behavioral Skills (IMB) model [39,25,40,41]. In particular, the IMB model states that HIV prevention information and motivation works through prevention behavioral skills to influence risk reduction behaviors, such as safe sex practice [39]. The model considers information and motivation to be independent constructs, but may relate to the practice

of behavioral skills relevant to risk behavior change. In effect, the model proposes that to practice safe sex, it is necessary for an individual to possess the information or knowledge about how to prevent HIV infection, and the motivation to prevent HIV infection. The framework is appropriate because it is considered to be parsimonious, its constructs are operationally defined, and it specifies the causal linkages between its theoretical determinants and their relation to prevention behavior [21,42]. Unlike other models, such as the theory of reasoned action [43] and theory of planned reason [44,45], used in the study of HIV/AIDS and its risk factors, the IMB model has been validated extensively as providing a more comprehensive model for identifying socio-cognitive predictors of health behavior outcomes (such as HIV prevention) that are of theoretical and empirical importance [46,39,25,47,40,48]. In addition, the IMB model has been applicable to behaviors outside the HIV domain including voting behavior [49], breast self-examination behavior among women [41], adolescence smoking behavior [50] and oral rehydration behavior in developing countries [51]. However, few studies have sought to test the applicability of prevailing theories of HIV risk behavior among students attending HBCUs.

Previous research on information pertaining to HIV prevention has shown information to be an inconsistent predictor of HIV preventive behavior [52,16,53]. However, when assessed within the framework of the IMB model, information has been a consistent predictor of HIV preventive behavioral skills [42,54]. Motivation is theorized to include both personal motivation (that is, personal attitudes towards performing preventive behavior), as well as social motivation (that is, perceived social support for engaging in safe sex practice). In a sense, the IMB model suggest that an individual's motivation to engage in preventive behavior is determined not only by his or her own personal feelings about whether preventive behavior is good, but also whether friends and other referents provide social support for such preventive behavior. According to the IMB

model, information and motivation influence risk prevention independently, and in large part, indirectly through behavioral skills needed to perform HIV preventive behavior [25,55]. In principle, behavioral prevention skills refer to an individual's sense of self-efficacy necessary to engage in preventive behavior. Thus, an individual would need to perceive that he or she possesses the behavioral skills necessary for health risk prevention.

Using the IMB model, HIV and health promotion researchers have consistently found a strong association between motivation and behavioral skills [41,42,54]. Other studies have shown that behavioral skills mediate the effects of motivation on preventive behavior and HIV prevention behavior [54,55,56]. Recent research has shown a strong positive influence of personal motivation on HIV prevention behavior among Historically Black College students [25]. In summation, the IMB model suggests that knowledgeable and motivated individuals who enact the relevant behavioral skills are more likely to practice the recommended preventive behaviors, such as HIV prevention.

The purpose of this study was to assess the effect of past exposure to violent living conditions and personal motivation on HIV risk behavior within the framework of the IMB model among Historically Black College students. Specifically, the study was aimed at providing empirically-ground answers to two research questions. First, what is the effect of past exposure to violent living conditions on HIV risk behavior among Historically Black College students? Second, what is the influence of knowledge of HIV prevention on HIV risk behavior among Historically Black College students? Third, what is the influence of personal motivation of HIV prevention on HIV risk behavior among Historically Black College students? Based on the discussion above, these three research questions translate into the three research hypotheses which were examined in this study. First, past exposure to violent living conditions has a

positive effect on HIV prevention behavior. Second, Knowledge of HIV prevention has a positive effect on HIV prevention behavior. Third, personal prevention motivation has a positive influence on HIV prevention behavior.

2. METHODS

2.1 Research Design

This study employed a cross-sectional quasi-experimental one-shot case study design [57]. This design is generally considered to be most useful in exploring researchable problems or developing ideas for action research, and considered to be appropriate when exploring individuals' acquisition of relatively new or less understood phenomenon, such as HIV prevention behavior of students attending HBCUs [57]. A schematic representation of the design is displayed in Fig. 1.

Treatment	Post test
X	O ₂

Fig. 1. Quasi-experimental one-shot case study design

where X is an HBCU student's past exposure to violent living conditions, HIV prevention knowledge, HIV prevention personal motivation. O₂ is the level of a student's HIV prevention behavior.

2.2 Participants and Procedure

The Historically Black College selected for this study has a population of 6,217 college students enrolled. A breakdown of the population by race/ethnicity shows that approximately 70% is African American, 17% is Caucasian, 4% is Hispanic, 1% is Native American and 4% is other racial/ethnic groups. The age distribution of the student population consists of 55% in the age range of 17-25 years old, 31% aged 26-40 years, and 14% is over 40 years. Most of the

students (68%) are females, while 32% is males. The distribution of the population by academic class shows that 19% is freshmen, 15% is sophomore, 18% is junior, 32% is senior, and 11% is graduate. Most of the students (66%) attending the university are enrolled as full-time students, while 34% are part-time.

Participants in the study included a purposive, convenience sample of students aged 18 years or older attending this particular HBCU. After receiving Institutional Review Board's (IRB) approval, various professors were contacted and asked for permission to conduct the survey during a portion of their class time. Once the permission was granted, we met with the students during the class period and explained the purpose of the study to them. They were also informed that their participation was strictly voluntary and they may either opt not to participate in the study and leave or not provide a response to any of statements. In addition, the students were informed that no incentive will be provided for their participation in the study. The students who agreed to participate in the survey were provided with a consent form for them to read, sign and date. The consent form explained to the students that their participation was voluntary and would not affect their grade and their identity will be kept strictly confidential, and their names would not appear in any report. We adhered to all American Psychological Association (APA) research guidelines. This method varied from the traditional study in which researchers surveyed students in class during a 1-week period in 2003 [15]. The survey was anonymous in that no identifying information was connected to individuals, or included in, the data set. Participants completed the survey during class time and returned them before leaving the class. Non-participants were asked to remain quiet or were dismissed from the class early. The survey took less than 10 minutes to complete. A total of 297 students agreed to participate in the survey.

2.3 Measures

A survey instrument developed and validated by researchers at Fayetteville State University in North Carolina was used to collect the data for this study [26]. The survey instrument includes items measuring a person's level of prevention of past exposure to violent living conditions, HIV prevention knowledge, personal motivation to prevent HIV infection, and HIV prevention behavioral skills.

Past Exposure to Violent Living Conditions. Past exposure to violent living conditions was measured by a battery of 17 items scored on a 4-point Likert scale ranging from 1=never at all to 4=very often.

1. I have seen someone pull a knife or gun on someone
2. I have cut or stabbed someone with a knife
3. I have shot at someone with a gun
4. I have seen someone shot with a gun
5. I have seen someone killed with a gun or knife
6. I have seen someone hit someone with a stick or baseball bat
7. I have hit someone with a stick or baseball bat
8. I have seen someone hit with an iron rod
9. I have seen someone throw stones or utensils at someone
10. I have seen someone sexually assault someone
11. I have been sexually assaulted by someone
12. I have been involved in fist fights
13. I have seen people involved in fist fights
14. I have seen people involve in fight with weapons
15. I have been involved in fights with weapons
16. I have seen someone shot with a gun
17. I have seen someone killed with a gun or knife

The items were subjected to exploratory factor analysis (EFA) using a separate sample (N=147) from the same student population to determine the meaningful loading structure of the 17 items in the original past exposure to violent living condition instrument. In particular, principal component factor analysis applying the varimax rotation was used to reduce or organize the item pool into a smaller number of interpretable factors. The number of factors was determined by

joint consideration of Cattell's [58] scree plot and the latent root residual (eigenvalue) criteria. Thurstone's [59] principle of simple structure using pattern coefficients of absolute 0.3 as the lower bound of meaningful per factor and interpretability of the solution were used to determine the final solution [60].

The second step of the analysis involved calculating the internal consistency estimates (Cronbach's alpha) for the items representing each factor retained from the exploratory factor analysis procedure. Cronbach's alpha of 0.6 was considered as the minimum acceptable level of internal consistency for using a factor [61,62]. For factors with Cronbach's alpha below this minimum benchmark, the internal consistency of the factor was improved by identifying and removing items with low item-test correlation and item-rest correlation [63]. If no improvement of the reliability score occurred, the factor was deleted.

The EFA produced a final solution consisting of three distinct latent constructs and eight items. The first construct, called *past exposure to weapon violence prevention* was measured by nine items, such as: (a) I have seen someone pull a knife or gun on someone, (b) I have cut or stabbed someone with a knife' (c) I have seen someone shot with a gun' (d) I have been involved in fights with weapons. The second construct, called *past exposure to physical violence prevention* (PEPVP) operationalized using six item items such as: (a) I have seen someone throw an object at someone, (b) I have seen someone yell at someone. The third construct, named *past exposure to sexual violent prevention* (PESVP) was measured by two items: (a) I have seen someone sexually assaulted someone, (b) I have been sexually assaulted by someone. Each of the items was scored on a 4-point Likert scale ranging from 1=very often to 4=never.

The factorial validity of the 3-factor past exposure to violent living condition measurement scale was tested by performing a first-order confirmatory factor analysis (CFA) using AMOS 21.0. The CFA produce a final solution of a total of ten items (Figure 1). Factor 1, PEWVP, was measured by five items such as “I have seen someone at with a gun”. Factor 2, PEPVP, was measured by three items such as “I have been yelled at by someone”. Factor 3, PESVP, was operationalized using two items: (a) I have seen someone sexually assault someone, (b) I have been assaulted sexually by someone.

Figure 1: Past violent exposure to violent living condition CFA Measurement Model for Historically Black College Students

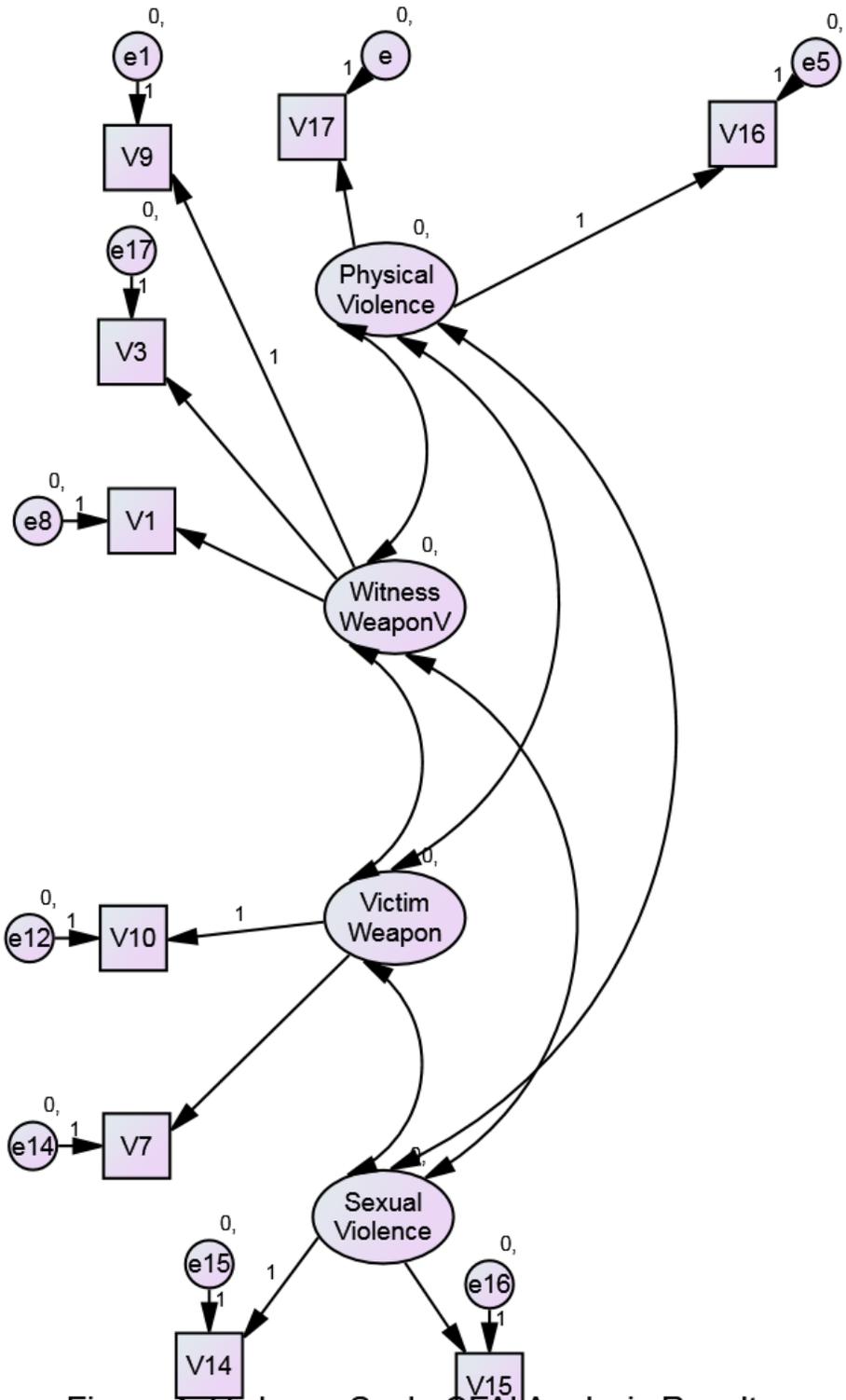


Figure 1: Violence Scale CEM Analysis Result

$\chi^2(32, N=146) = 56.980, p \leq .01.; CFI = .97; TLI = .95, RMSEA = .07$

Knowledge. This construct was measured by the five items scored on a 5-point Likert scale ranging from 1=strongly agree to 5=strongly disagree: (a) A person can get HIV from tears or saliva; (b) A person can be infected with the AIDS virus from someone's cough or sneeze on them; (c) Sharing cooking utensil with a person who has AIDS is not safe; (c) A person can get the AIDS virus by using a public toilet; and (d) A person can be infected with the AIDS virus from mosquitoes.

Personal Motivation. HIV prevention personal motivation was operationalized using three items scored on a 5-point Likert scale ranging from 1=strongly agree to 5=strongly disagree: (a) During sex, I would be insulted if my partner insisted we use condoms, (b) I intent to talk about HIV prevention with a mate only after sex, (c) I dislike the idea of limiting sex to just one partner.

Behavioral skills. HIV prevention behavioral skills were measured by two items scored on a 5-point Likert scale ranging from 1 = Strongly disagree to 5 = Strongly agree: (a) I would openly promote others to get tested for HIV, and (b) If I was HIV positive, I would tell my mate. The two items were used as indicators of the IMB's latent behavioral skills variable (see Table 1), which loading significantly on the two measures ($p = .001$).

Table 1. Standardized estimate for HIV Prevention Measure items

HIV Prevention Measurement scale items	Estimate
HIV Prevention Knowledge	

A person can get HIV from tears or saliva (PK1)	.63
A person can be infected with the AIDS virus from someone's cough or sneeze (PK2)	.74
Sharing cooking utensils with a person with AIDS is not safe (PK3)	.66
A person can get AIDS by using a public toilet (PK4)	.73
HIV Prevention Personal Motivation	
I intend to talk about HIV prevention with a mate only after sex (PM2)	.37
I dislike the idea of limiting sex to just one partner (PM3)	.75
Past Weapon Violence Witness Prevention	
I have seen someone shot with a gun (V3)	.78
I have cut or stabbed someone with a knife (V2)	.81
I have seen someone pull a weapon on someone (V1)	.80
Past Physical Violence Witness Prevention	
I have been yelled at by someone (V16)	.89
I have seen someone yell at someone (V17)	.94
Past Weapon Violence Victim Prevention	
I have been involved in fist fights with weapon (V10)	.79
I have been involved in fist fights	.77
Past Sexual Violence Prevention	
I have seen someone sexually assaulted someone (V14)	.85
I have been sexually assaulted by someone (V15)	.74
HIV Prevention Behavioral Skills	
During sex, I would be insulted if my partner insisted we use condoms (PB3)	.38
If I was HIV positive, I would tell my mate (PB2)	.75

2.4 Statistical Analysis

Latent variable structural equation analysis was performed to assess the influence of IMB prevention motivation (education and personal), past exposure to violence prevention, and prevention knowledge on prevention behavioral skills using AMOS 17.0 [64]. To make full use of the available data, full maximum information likelihood (FIML) estimation procedure was used. A number of indices were used to evaluate the goodness of fit of the five-factor orthogonal HIV prevention behavior (HPB) structural IMB model. The model absolute fit was assessed using chi-square statistics, χ^2 , with low χ^2 considered good fit [62]. Incremental fit was evaluated using the Root Mean Square Errors of Approximation (RMSEAs) with a value less than 0.06 indicating a relatively good fit, along with Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) with values of .95 or greater considered desirable [65,62,66,67,68]. The likelihood that the model's parameter estimates from the original sample will cross-validate across in future samples was assessed by examining the Akaike's [69] Information Criterion (AIC) and Bozdogen's [70] consistent version of the AIC (CAIC) with lower values of the hypothesized compared to the independent and saturated models considered to be appropriate fit. The likelihood that the model cross-validates across similar-sized samples from the same population was determined by examining the Expected Cross-Validation Index (ECVI) with an ECVI value for the hypothesized model lower compared to both the independent and saturated models considered to represent the best fit to the data. Finally, Hoelter's [71] Critical N (CN) was examined to determine if the study's sample size was sufficient to yield an adequate model fit for a χ^2 test [72] with a value in excess of 200 for both .05 and .01 CN indicative of the structural model's adequately representing the sample data [73].

Normality of the distribution of the model's variables was assessed by Mardia's [74,75] normalized estimate of multivariate kurtosis with value of 5 or less reflexive of normal distribution. Multivariate outliers were detected by computation of the squared Mahalanobis distance (D^2) for each case with D^2 values standings distinctively apart from all the other D^2 values as indicative of an outlier.

The magnitude of effect of prevention personal motivation, and violence exposure, and prevention knowledge latent constructs on prevention behavioral skills latent construct was determined by estimating the standardized regression coefficients (Beta coefficients (β) or factor loadings), with β 's below .05 too small to be considered meaningful influences on prevention behavioral skills, even when they are statistically significant; those between .10 to .25 were considered moderate influences on prevention behavioral skills; and those above .25 considered large effects on behavioral skills [76] .

3. RESULTS

Table 1 and Figure 2 display the standardized parameter coefficients with factor loadings of latent variables onto the measured variables and the direct effects within the structural portion of the tested causal model. The fit of the IMB prevention model of this complexity was good ($\chi^2(83, N = 343) = 142.663, p < .01$; CFI = .97; TLI = .95; RMSEA = .04). The model explained 98% of the variance in prevention behavior among the sample of HBCU students. The AIC fit statistics of 280.663 for the hypothesized model is lower compared to the saturated model (AIC= 304.000) or the independent model (AIC= 2116.975), indicative of appropriate fit of the model to the data. Also, the ECVI for the hypothesized model is lower (.821) compared to the independent model (.889) and the saturated model (5.821), suggesting that the model represent the best fit for the data. Hostler's Critical N value for the model is 253 at .05 level and 278 at

the .01 level, which suggests that the structural causal model adequately represent the sample data. Finally, Mardia’s normalized estimate of multivariate kurtosis (C.R. value) is -1.715 which is reflexive of a normal distribution. The square Mahanalobis distance (D^2) values showed minimal evidence of multivariate outliers.

Table 2 displays the estimated standardized (β) coefficients associated with each of the exogenous latent constructs in the structural equation causal model. Personal motivation to prevent HIV infection had a large positive and significant effect on prevention behavioral skills ($\beta = .96, t = 4.128, p < .01$). Past witness to weapon violence living condition prevention had a moderate, but insignificant effect on HIV prevention behavior ($\beta = .14, t = .980, p < .01$). Past sexual violent living condition prevention had a negative moderate, but statistically insignificant, effect on prevention behavior skills ($\beta = -.12, t = -1.431, p > .01$). Past victim of weapon violence living condition prevention, past witness to physical violence prevention and knowledge of HIV prevention had no meaningful effect on prevention behavioral skills ($\beta = .04, t = .227, p > .01$; $\beta = -.07, t = -.819, p > .01$; and $\beta = .05, t = .508, p > .01$, respectively).

Table 2: Structural Equation Unstandardized and Standardized Regression Weights of Prevention Personal Motivation and Past Violent Exposure on Prevention Behavioral Skills among Historically Black College Students

Exogenous Construct	<i>b</i>	S.E.	β	<i>t</i>	<i>P</i>
Past physical violence witness living condition prevention	-.05	.060	-.07	-.819	.412
Past weapon violence witness living condition prevention	.16	.165	.14	.980	.327
Past weapon violence victim living condition prevention	-.04	.152	-.04	-.227	.820

Past sexual violence exposure living condition prevention	-0.17	.119	-.12	-1.431	.152
HIV Prevention Knowledge	.03	.060	.05	.508	.611
HIV Prevention Personal Motivation	2.6	.619	.96	4.128	.001

Endogenous Construct: Prevention Behavioral Skills

N=342

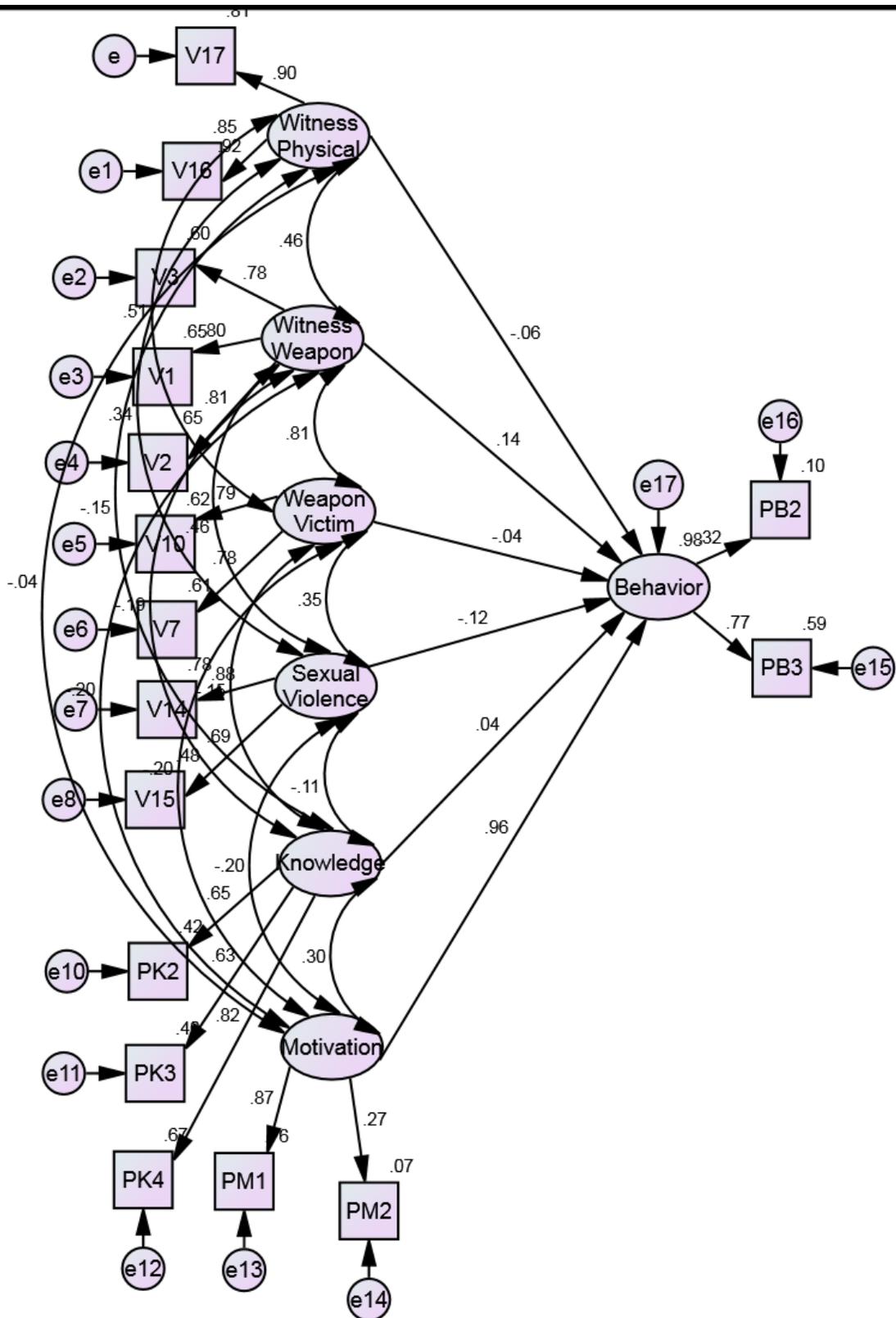


Figure 2: HIV Prevention Behavior CFA Structural Model for Historically Black College Students

4. DISCUSSION

This study was aimed at using the Information Motivation Behavioral Skill (IMB) model to assess the influence of prevention education motivation, prevention personal motivation, past exposure to violent living condition prevention on prevention knowledge on HIV prevention behavioral skills among students attending Historically Black Colleges and Universities (HBCUs). Through exploratory principal component factor analysis were identified four distinct types of exposure to violent living conditions: witness to weapon violence living condition, victim of weapon violence living condition, witness to physical violence living condition, and sexual violence living condition. The four exposures to violent living condition prevention, prevention knowledge and prevention personal motivation collectively formed the exogenous variables of the IMB model.

The study found that only one of the four exogenous latent constructs, prevention personal motivation, behaved as expected in that it exhibited a strong positive influence of prevention behavioral skills among the students. This finding is consistent with the finding of previous research using the IMB model [41,42,55,56,26]. Meanwhile, past witness to weapon violence living condition prevention had a moderate positive, although not statistically significant, effect on the students' HIV prevention behavioral skills. This finding is somewhat consistent with previous research findings on the effect of past exposure violent living conditions on HIV infection risk behavior [31,32,33,34,35,36,37]. The finding of no meaningful effect of prevention knowledge on behavioral skills is consistent with previous research [52,16], but inconsistent with research using the IMB model [42,54]. Interestingly, exposure to sexual violence living condition prevention construct did not behave as expected in that it had a weak

negative and insignificant influence on HIV prevention behavior among HBCU students, while exposure to physical violence living condition prevention had no effect at all on HIV prevention behavior among the HBCU students. These findings deviate from previous research findings [22,23,31,32,33,34], but may be unique to HBCU students. Collectively, the findings of this study suggest that of the seven exogenous latent construct of the IMB model, only personal motivation, and to a lesser degree, past exposure to weapon violence prevention and past sexual violence prevention programs may be effective in enhancing HIV prevention behavioral skills among students attending HBCUs. Hence, the focus of HIV prevention programs in HBCUs may be on promoting personal motivation and identifying and treating students who have been exposed to past weapon and sexual violent living conditions for post-traumatic stress disorder (PTSD), rather than the existing emphasis on providing the students with HIV prevention education and information, which seem to be effective in reducing HIV infection on non-HBCU campuses, and not on HBCU campuses.

This study has some limitations that should be acknowledged. While the findings of this study provide unique insights into the influence of personal motivation, knowledge, exposure to violent living conditions on HIV preventive behavior among HBCU students, the external validity of the findings remains questionable. Using the findings of our study as a guide to designing and implementing HIV prevention programs on HBCU campuses in general should be made with caution. Although the predictive fit indices (AIC and ECVI) indicate the adequacy of the model to be applicable across future samples and samples of the same population, future studies should expand the validation process to multi-group tests of equivalence of the HIV prevention behavior causal structure. Finally, we recommend that future studies should be conducted at other HBCUs to determine the consistency of our findings.

ACKNOWLEDGEMENTS

Support for this study was provided by spring 2013 STEM Graduate Mini-Grant from the Graduate School, Fayetteville State University. We thank Ashley Crawley, our graduate research assistant, for assisting in the data collection process, and compiling and inputting the data into the computer for analysis. Finally, our gratitude to the professors at Fayetteville State University who generously allowed us to take part of their class time to administer the survey to their students, as well as to the students who participated in the survey.

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