

## Information-Adequacy, Motivation and Behavioral-Skills as Determinants of Substance-Use Prevention among Undergraduates in Babcock University, Ilishan – Remo, Nigeria

Article by Peter C. Ikonta<sup>1</sup>, Bola C. Atulomah<sup>2</sup>, Ogechukwu E. Okondu<sup>3</sup>, Nnodimele O. Atulomah<sup>4</sup>

<sup>1</sup>Student Development, Babcock University, Ilishan, Nigeria

<sup>2</sup>IBM Library, Kampala International University, Kampala, Uganda

<sup>3</sup>Department of Public Health, Babcock University, Ilishan-Remo, Nigeria

<sup>4</sup>Department of Health Science, Cavendish university, Kampala, Uganda

E-mail: ikontap@gmail.com<sup>1</sup>, bola.christie@kiu.ac.ug<sup>2</sup>, okondue@babcock.edu.ng<sup>3</sup>, annodimele@cavendish.ac.ug<sup>4</sup>

### Abstract

**Objective:** This study investigated the dynamics of information-adequacy, motivation and behavioral skills towards substance-Use prevention among undergraduates in a selected tertiary educational institution in Ogun State, Nigeria.

**Methods:** This was a theory-driven cross-sectional design which use a 45-item validated questionnaire to collect data from 604 consenting students by multistage sampling procedure. Variables of information-adequacy regarding substance-use consequences, motivation, Self-Efficacy Behavioral Skills (SEBS) and substance-use were measured. Data collected were analyzed using IBM SPSS version 24 to compute means and standard deviations and test associations between variables and determine path analysis of best predictors of substance-use prevention, at 5% level of significance.

**Results:** Mean age of respondents was  $19.92 \pm 3.20$  with 56% females and majority (31%) of final year students participated. Levels of information-adequacy regarding substance-use consequences ( $6.41 \pm 2.51$ ), motivation ( $23.26 \pm 5.76$ ), SEBS ( $11.67 \pm 4.10$ ) and Substance-Use ( $4.01 \pm 7.19$ ) were generally good respectively. There was a significant relationship between information-adequacy and Motivation ( $r = 0.259$ ;  $p < 0.05$ ), and with self-efficacy behavioral skills ( $r = 0.341$ ;  $p < 0.05$ ). Information-adequacy ( $r = -0.10$ ;  $p < 0.05$ ), and SEBS ( $r = -0.286$ ;  $p < 0.05$ ) and motivation ( $r = -0.246$ ;  $p < 0.05$ ) were significantly negatively correlated with substance-use. Stepwise Logistic regression analysis showed that SEBS ( $B = -0.119$ ;  $OR = 0.890$ ;  $95\%CI: 0.803 - 0.982$ ;  $p = 0.021$ ) was best predictor of substance-use prevention

**Conclusion:** Self-efficacy behavioral skills of individuals was found to best predict substance-use prevention. Other variables contributed in strengthening behavioral skills and may be useful in designing substance-use prevention intervention as this would strengthen drug use reduction among students.

**Keywords:** Information-Adequacy, self-efficacy, motivation, behavioral skills, substance-use reduction.

### Introduction

Substance abuse continues to constitute an important public health concern of wide impact among young people in contemporary culture [1] mainly due its potential psychoactive effects [2] associated with enormous human suffering, morbidity, mortality and economic loss [3]. Like

most social behaviors, abuse of chemical substances with addictive potential seriously impact adolescents especially students in higher institution of learning [4, 5] as the initiation into drug use first starts during the period they are beginning to socialize [6]. Characteristically, this is the age in which a number of students

engage in high-risk behaviors such as smoking, consumption alcoholic drinks and drug abuse [7, 8]. Several recent studies for example, have examined the potential effects of all substance-use behavior and conclude that high morbidity and premature death in the world is related to substance abuse problems [9]. Similarly, substance-use outcomes almost always end with mental and behavior disorders, violence, declining grades, increased potential for dropout and high truancy rates, suicides homicides, and accidental injuries among students [10].

Despite National and organizational-based interventions, prevalence of drug abuse continues to rise with over 40% of students abusing various types of drugs [5]. An estimated 150 million young people engage in use of tobacco worldwide and many of these adolescents are students in higher institutions [11]. In India for example, crude death rate of approximately 90 deaths per 100,000 people for men and 60 per 100,000 for women have been recorded [12]. In the United States of America, 52% of the eighth graders and 80% of the high school seniors have used substances with abuse potentials at some time [8]. A study on students' opinion on prevalence of substance use among university students in Nigeria revealed that 80.5% of the students perceive excessive consumption of substances with abuse potential constitute a problem that invariably leads to anti-social conducts such as illicit sexual acts, physical assaults, robbery, cultism among other [13, 14, 15].

The use of psychoactive substances among various age groups for producing alteration of both physiological and psychological functions of the body have been part of human experience for adults and criminally minded people [15]; however, today the prevalence of drug abuse have reached an epidemic proportion such that young people and children are involved [16]. For instance, the use of cannabis has been the most popular substance of abuse across the globe, and highest in West and Central Africa sub-region [17] with an estimated 10.8% lifetime consumption in Nigeria, both in rural and urban areas followed by 10.6% benzodiazepines and amphetamine-type stimulants, 1.6% heroin and 1.4% cocaine [18].

According to Substance Abuse and Mental Health Services Administration [19], since 2009, the prevalence of cannabis, opioids, and opiates

use has risen to an overall estimate of 18 per cent increase than in the preceding year; which to some extent reflects both an increase in the global population and illicit drug use [20]. Hence World Health Organization attributes more than 4 million deaths a year to tobacco, and it is expected that this figure will rise to 10 million deaths a year by 2020 [21].

Many theorists have tried to account for why people use alcohol and other drugs, and especially why they continue or relapse despite negative consequences. Some theories suggest genetic and other biological factors, while others emphasize personality factors or social-environmental factors [22]. It is believed that many genes influence people's responses to alcohol, and that their responses reflect a continuum of vulnerability to alcohol problems. In those who are vulnerable, alcoholism is an inevitable, progressive and irreversible condition leading to increase tendency to use drug on association with access to drugs or individuals who support drug use but decrease association with those who discourage drug use [23]. Prevalence of substance abuse as a societal phenomenon rooted in cultural, social and economic origins external to the individual such as poverty, inequality and social disorganizations in society [24].

Smoking, alcoholism and other substances with abuse potential among young people are influenced by factors such as peer group, faulty parenting style and family economic status, religion/moral decadence, media influences; and networks with a high degree of homogeneity [25, 26]. Possible explanation is that all human especially adolescents live within physical environment constantly exposed to condition that facilitates performance of certain behaviors [14]. Environmental influence on substance abuse include acceptance of use by society, availability on the streets [27] and low negative consequence portrayal by electronic media while unsuspecting adolescents daily spend most of their time watching influential characters such as movie stars reference illicit substances [28]. Implicitly adolescent's exposure to substance use in such contradictory immediate social environment increases the likelihood of imitation in drug abuse [29]. Young people get involved with drug abuse through experimentation with small and tolerable level dosages; the first experience may produce a

feeling of excitement which may motivate them to continue leading to progressive increase of the dosage in order to produce the same effect [16].

In our society, drinking of alcohol for example is culturally tolerated as part of ceremonial lives of many ethnic groups however harmful effects of such practices cannot be denied in the present world [30] unfortunately, many are misinformed about the social consequences by way of intoxication or drunkenness and other biochemical effects of alcohol use [31]. Thus, [4], claims that an upsurge of psychoactive substance use among adolescents is associated with inaccurate information about the risks of the habits.

Motivation for increasing uptake of drug abuse among youths include low self-esteem and the desire to boost their self-confidence in social matters, reduction of stress and frustration when faced with ugly situations, susceptibility to the influence of peers, advertisement and living with a smoker [32, 33]; curiosity leading to experimentation and search for excitement created by repeated experiments [3]. Adolescents indulge in the habit of using substances with abuse potential for the purpose of finding escape route from reality of day-to-day problems such as pain, boredom, fatigue, anxiety, poverty, and other behavioral or emotional problems [34].

The influence of self-efficacy on a person's psychological, social, and moral functioning, and attitudes and beliefs have a direct impact on adolescent drug taking thus self-efficacy functions as a multilevel set of beliefs that influences how people feel, think, motivate themselves, and behave [35]. In a study to explain conceptualization of adolescents' efficacy in refusing substance offers found that the greater the alcohol-resistance self-efficacy, and marijuana-resistance self-efficacy individuals had, the less likely they were to drink alcohol and use marijuana, respectively [36]. Investigation of patient experiences and perceptions regarding the efficacy, side effects, and practical problems of antidepressants, as well as their associations with non-adherence, and the moderating effect of perceived self-efficacy on the associations found that higher perceived self-efficacy regarding taking antidepressants was associated with lower unintentional non-adherence whereas perceived

self-efficacy did not moderate associations of patient experiences and perceptions with non-adherence [37]. Findings on the connection between self-efficacy and substance use suggest that irrespective of the method of instruction students with a high level of perceived self-efficacy are likely to show a lower level of substance use than their low-self-efficacy counterparts [38]. Thus, the control of substance abuse can be developed in self-efficacy [39].

Developing a Conceptual understanding is important for the operationalizing information within the context of the Information-motivation-behavioral skills model. Can the model be used to explain the dynamics of substance use prevention behaviour? This is a model with four latent constructs of information, motivation, behavioral skills, and behavior of interest that are linked among sets of concepts believed to be related to a particular problem phenomenon that defines each step as it affects the others in a web of relationship. In this model it is assumed that information (cognition – measured by how adequate knowledge of consequences of substance abuse is able to awaken certain consciousness of consequences), motivation (psychosocial construct– assessed by perceived susceptibility of risks of substance-use and attitude towards substance abuse defines emotional responses towards the level of threat understood and how this is interpreted by the at-risk individual) will influence the participants' behavioral skills (behavioral skills intention examined as self-efficacy), and predict behavior leading to substance abuse prevention. Thus, individuals will maintain substance-use preventive behavior if they are well-informed, motivated and ultimately perceive themselves as possessing the behavioral skills necessary to prevent substance use [40]. Furthermore, information represents the essential resource necessary to arouse conscious awareness and learning experience required to improve the ability to make decisions in resolving course of action where there are many options to choose from. When information about a particular problem phenomenon is adequate, choice of course of action becomes robust and the decisions made becomes better informed.

The purpose of this study was to determine the dynamics of theoretical and conceptual underpinning of information-Adequacy, motivation, self-efficacy and substance-use

prevention among undergraduate students in a higher institution of learning in South-Western Nigeria. We hypothesized that substance-use prevention would be significantly dependent on self-efficacy behavioural skills, and that information-adequacy and motivation would be significantly correlated with self-efficacy behavioral skills providing the proof of concept required to establish that the IMB model can be used to explain the dynamics of substance-use prevention behaviour among young people [23].

## **Materials and methods**

### **Study design, subjects and settings**

A school-based cross-sectional survey utilizing a 45-item questionnaire (Cronbach's alpha of 0.81) validated by test-retest reliability, to collect information about knowledge, motivation, self-efficacy and substance abuse prevention from 604 randomly selected from undergraduate students of Babcock University, Ilishan-Remo, South-western Nigeria who participated in the study. The study received approval from Babcock University Health Research and Ethical Committee. Informed consent was sought from all who accepted to participate. The participants were selected by a combination of systematic and multi-stage sampling hostels, blocks and rooms drawn from a sampling frame of a population of 8000 students. Participants were required to respond to the items in the questionnaire with some guidance from trained research assistants.

### **Development of instruments for the study**

A 45-item questionnaire was developed that measured responses of the participants regarding demographic characteristics, level of information-Adequacy measured as knowledge acquired through information regarding consequences of substance-use, motivation, self-efficacy and substance-use prevention performed by the respondents. In developing the questionnaire for this study, four conceptual domains related to information, motivation and self-efficacy behavioural skills (IMB) and outcome measures (Substance-use prevention) were considered [41].

### **Main measures and analysis**

The three domains of the variables in this study are the independent variables defined by the demographic characteristics of the

respondents, with three moderating variables of information-Adequacy, Motivation and Self-efficacy behavioural skills, the dependent variable in this study is substance-use prevention.

### **Demographic measures**

Five-item measures were designed to collect gender, age, class levels, ethnicity and family background, and represented the independent variables.

### **Information-adequacy**

The construct, information, was incorporated into the questionnaire and expressed in items which deal with information based on knowledge acquired regarding substance-use consequences measured on a 12-point reference scale. Level of Knowledge items sought information regarding the effects of substance-use and awareness with response options of *Yes or No* scoring 1 for correct response and 0 for incorrect response for scoring. Example, "effect of substance abuse on mental health is a problem of those who use drugs very often"; "I am aware nicotine increase mental alertness of users". Higher scores indicate students have access to information regarding substance abuse consequences.

### **Motivation towards substance-use prevention**

Motivation was operationalized through questionnaire items which incorporated perceived susceptibility and severity of consequences related to substance-use and attitudinal disposition towards substance-use. This section which comprised of two parts was measured on an aggregated 39-point reference scale. (i). Perceptions involved with substance-use (5 items), example "cigarette smoking is used to relieve unpleasant feelings" (ii). Attitudinal disposition to substance abuse (8 items) example "smokers die young", "alcohol accessibility could lead to drunkenness". The 4-option Likert response scales of *strongly agree, agree, disagree and strongly disagree* was used and scored according to appropriateness of responses reflecting drives and reinforcements to recognize susceptibility and severity of consequences involved with substance-use on weighted interval scales of 0, 1, 2 and 3 respectively representing measures of level of

motivation to avoid substance abuse assumed to be a function of the individual not approving social norm of using substances with abuse potential and personal attitudes such as refusing drug abuse based on the benefits of not using alcohol and drugs, and the values associated with those benefits [40]. The sum of the scores of these two items was converted into the scale of motivation.

Participant rated the extent to which they agreed or disagreed with each statement on an item four-point scale, and scores were recoded to reflect weighted levels of motivation as 3, 2, 1, and 0 respectively. The aggregate weighted sum of the items represented the level of motivation measured on 0 to 39-point reference scale. A high score indicated strong feeling of vulnerability or susceptibility and positive attitude towards drug abuse refusal contrary to social acceptability.

### **Behavioral skills (self-efficacy)**

Behavioral skills intention operationalized in the construct of IMB model was incorporated in the questionnaire and expressed by items considering issues of self-efficacy related to substance-use prevention. Self-efficacy was measured by 6-items on an aggregate weighted scale of 18-point reference scale; the 4-option Likert scale: *strongly agree, agree, disagree and strongly disagree* scored was used and coded 3, 2, 1 and 0 respectively with highest score to represent appropriateness of response reflecting confidence to perform required actions to avoid getting involved with any form of substance abuse; the sum gave an aggregate measure of 0 to 18-point reference scale for level of self-efficacy behavioral skills. Higher score indicated more confidence to reject substance abuse offers.

### **Substance abuse prevention**

Substance abuse prevention was appraised with 9-item measure on a 5-point weighted aggregate score of 36-point reference scale. This was derived similarly as the constructs described above where Likert-type response scales of *Always, most of the time, Sometimes, Rarely, Never*, were scored 4, 3, 2, 1 and 0 respectively to give an aggregated 36-point reference scale measuring level of substance-use experience. Lower scores represented response of not taking

any illicit drugs reflecting stronger commitment to zero tolerance for drug abuse.

### **Data analysis**

Data was coded appropriately and entered into the passworded computer running the statistical software IBM SPSS version 24 where scales of measures were transformed and aggregated developing the composite scores that were used to generate summaries of descriptive statistics of means, standard deviations, and standard error of means. The nature of association proposed in the study hypotheses, guided by the IMB model, was characterized and tested using multiple regression analysis. Stepwise Logistic regression was used to determine the most significant predictors of substance-use prevention at 5% level of significance.

### **Results**

#### **Demographic characteristics of respondents**

The mean age of respondents in this study was  $19.92 \pm 3.20$  and majority were final year students (31%) with 56% of them females. Characteristically, a significant proportion are from the Yoruba ethnic expression origin (59.4%), Igbo and international origins made up 19.% participants in the study. About 17% of the study participants were from a single parent family, divorced or separated parents (13.2%); polygamous family (11.3%), and 2% had no parents while growing up. (See Table 1).

#### **Information-adequacy**

Level of Information-Adequacy measured on a 12-point reference scale showed that respondents scored a mean of  $6.41 \pm 2.51$  translated to a knowledge prevalence of 53.4%, indicating that the study sample had average knowledge about issues related to substances with abuse potentials. (See Table 2).

#### **Motivation**

Considering level of motivation to avoid involvement in substance-use measured on a 39-point reference scale for participants in this study reported a mean score of  $23.26 \pm 5.76$  with a prevalence of about 60% demonstrating a little above average level of motivation towards substance-use prevention. (See Table 2).

### Self-efficacy behavioural skills

Self-efficacy Behavioural Skills related to confidence to perform actions related to avoiding getting involved with any form of substance-use measured on 18-point reference scale showed that the mean score for this variable was  $11.67 \pm 4.10$ , demonstrating a little above average level of self-efficacy towards substance-use prevention at 65%. (See Table 2)

### Substance-use

Substance-use measured on 36-point rating scale revealed a mean score of  $4.01 \pm 7.19$  for respondents in this study demonstrating very low level of involvement in substance use with a drug prevalence of 11.13% and translated to mean that the level of substance use prevention is relatively successful among participants in this study. (See Table 2)

### Association between information-adequacy, motivation, behavioural skills and substance-use prevention

Correlation and regression analysis to characterize the proposed relationships involved between the three moderating variables and the outcome variable of Substance-use revealed that an inverse relationship thus exist between Information-Adequacy, Motivation (psychosocial variables), behavioural skills (self-efficacy) and the dependent variable of Substance-Use as demonstrated by coefficient computed for their

relationships (See Figure 1, and Table 3). The data in this study showed a weak negative but significant relationship between Information-Adequacy (cognitive) and Substance-Use ( $B = -0.283$ ;  $\beta = -0.099$ ;  $t = 2.44$ ;  $p = 0.015$ ), while a positive and statistically significant correlation was computed for Motivation ( $B = -0.307$ ;  $\beta = -0.246$ ;  $t = -6.205$ ;  $p < 0.001$ ) and Substance-Use. Similarly, between Self-Efficacy Behavioural Skills and Substance-Use ( $B = -0.501$ ;  $\beta = -0.286$ ;  $t = -7.332$ ;  $p < 0.001$ ). This translates in all the associations analysed that as these three moderating variables increase there is a corresponding reduction in substance-use observed. (See Table 3).

Similarly, when Information-Adequacy and Motivation was correlated with Self-Efficacy Behavioural Skills to determine the characteristics of the relationship existing between them revealed that as the two moderating variables increase there is a corresponding increase in the level of Self-Efficacy Behavioural Skills. (See Table 4) The data has provided proof of concept as predicted by the path analysis in the IMB model illustrated in figure 1. Analysis to determine which of the three moderating variables in this study most significantly predict Substance-use showed that Self-Efficacy Behavioural Skills significantly predicted Substance-Use ( $B = -0.119$ ;  $OR = 0.89$ ;  $95\% CI: 0.803 - 0.982$ ;  $p = 0.021$ ). All others were not significant as direct predictors of Substance-Use. (See Table 5).

**Table 1.** Demographic characteristics of respondents

Socio-demographic Variables	Respondents in this study N=604	
	Frequency (N)	Percentage (%)
<b>Gender</b>		
Male	266	44.0
Female	338	56.0
<b>Class level</b>		
100 level	149	24.7
200 level	126	20.9
300 level	137	22.7
400 level	192	31.8
<b>Ethnicity</b>		
Yoruba	359	59.4
Hausa	33	5.5
Igbos	115	19.0
**Others	97	16.1
<b>Family background</b>		
Single parents	98	16.2
Monogamous	349	57.8

Polygamous	68	11.3
Divorced	80	13.2
No parents	9	1.5

Others\*\* International origin and minor ethnic groups.

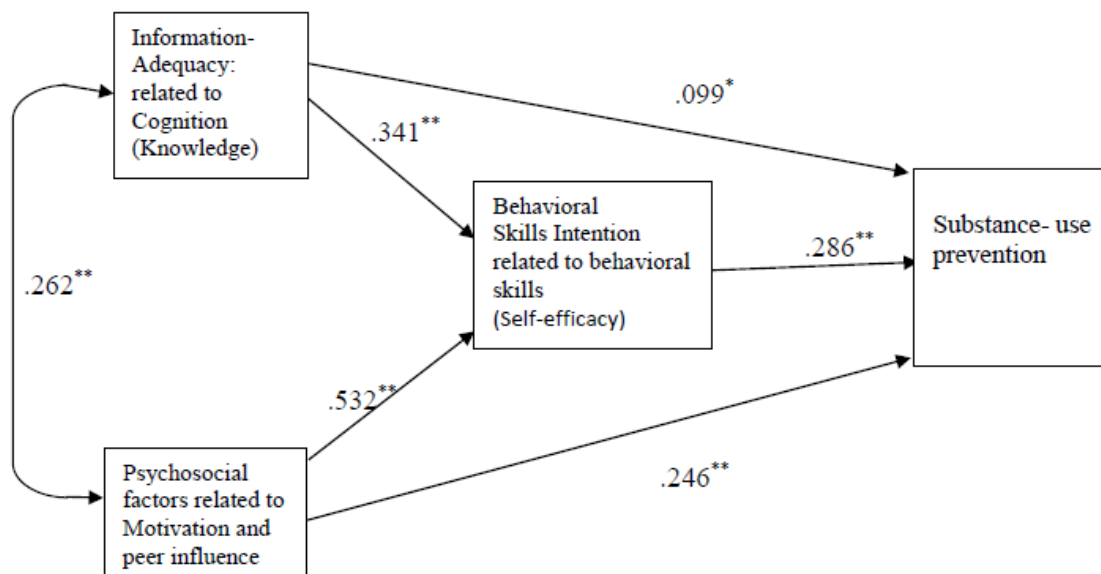
**Table 2.** Summaries of descriptive statistics for variables measured in the study

Variables	Reference Scale of Measure	Respondents in this Study N=604		Prevalence (%)
		$\bar{X}(SE)$	$\pm SD$	
Age	-	19.92(0.14)	3.20	-
Information-Adequacy	12	6.41(0.10)	2.51	53.42
Motivation	39	23.26(0.24)	5.76	59.64
Self-Efficacy Behavioural Skills	18	11.67(0.17)	4.10	64.83
Substance-Use	36	4.10(0.29)	7.19	11.39

**Table 3.** Coefficients for multiple regression analysis of predictor variables against sexual-risk practices for participants in the study

Variables	Substance-Use				P-value
	B	SE	$\beta$	t-value	
Information-Adequacy	-0.283	0.116	-0.099	-2.44	0.015
Motivation	-0.307	0.049	-0.246	-6.205	0.001
Self-Efficacy Behavioural Skills	-0.501	0.068	-0.286	-7.332	0.001

Respondents in this study N=604.



**Figure 1.** Path analysis of information motivation behavioral skills model

The preliminary IMB model predicting best determinant of substance abuse prevention among 604 undergraduate students; Headed arrow represent regression path, double-headed arrows represents co-variate correlations. Regression coefficient are standardized (\*P < 0.05, \*\*P < 0.01).

**Table 4.** Coefficients for multiple regression analysis of predictor variables against self-efficacy behavioural skills for participants in the study

Variables	Self-Efficacy Behavioural Skills				P-value
	B	SE	$\beta$	t-value	
Information-Adequacy	0.557	0.063	0.341	8.89	0.001
Motivation	0.378	0.025	0.532	15.39	0.000

**Table 5.** Logistic regression analysis of predictor variables against sexual-risk practices for participants in the study

Variables	Sexual-Risk Practices				P-value
	B	Wald	OR	95% CI	
Information-Adequacy	0.034	0.233	1.035	0.90 – 1.19	0.630
Motivation	-0.068	3.311	0.934	0.869 – 1.00	0.069
Self-Efficacy Behavioural Skills	-0.119	5.35	0.890	0.803 – 0.98	0.021*
Constant	-0.282	0.149	0.755	-	0.700

\*Significant; Respondents in this study N=604.

## Discussion

The study was undertaken to determine the dynamics of theoretical and conceptual underpinning of the relationship between information-Adequacy, motivation, self-efficacy and substance-use prevention among undergraduate students in a higher institution of learning in South-Western Nigeria. We hypothesized that substance-use prevention would be significantly dependent on self-efficacy behavioural skills, and that information-adequacy and motivation would be significantly correlated with self-efficacy behavioral skills providing the proof of concept required to establish that the IMB model can be used to explain the dynamics of substance-use prevention behaviour among young people [23].

Cognitive skills is driven by level of information acquired regarding any issue and in this case drugs with abuse potential likely to cause addiction, or awareness of consequences of substance abuse. In matters related to decision-making, it is very important to have all the information necessary to make the right decision. Information becomes very important in explaining the dynamics of substance-use because it is regarded as an important resource necessary to arouse conscious-awareness and learning opportunity without experiencing the consequences of a bad experience by recognizing consequences and improving ability to make decisions in resolving course of action where there are many options.

In the case of substance-use, such information as nature and characteristics of substances with abuse potentials would arouse caution to avoid engaging in the use of these materials. Behavioural skills intention of college students demonstrated a high self-efficacy towards substance-use prevention. High self-efficacy implies a strong confidence in performing required action and strong ability of the students to reject drug use offers and not becoming susceptible to the influenced of peers who may introduce substance-use as a means of social interaction [36, 42].

The desire to boost self-confidence in social matters, lack of motivation to stress reduction, frustration when faced with ugly situations are traits of peer pressure [32, 33]. These misconceptions may result in less substance abuse rejection among adolescent's drugs users spreads by imitation and experimentation [29].

This results in this study provides proof of concept in support of the research hypotheses as strengthened by the model that guided it [40, 44]. Adolescents who are highly informed on the risk and harm associated with drug use would eventually have high perception of adverse consequences and initiate drug use prevention [19].

It was also discovered that between psychosocial (motivation) and substance abuse prevention positive significant relationship was found, this suggests that behaviour is enhanced by motivation contrary to [44] non-mediated



path from motivation to optimal prevention behaviour.

A review of the path analysis describing how these variables are operating. The model posits that individuals will maintain health behaviour if they are well-informed, motivated and perceive themselves possessing the behavioural skills necessary to prevent drug use. From the study it was observed that students' knowledge related to information which was calculated to predict behavioural skills concerning substance abuse reveals a significant regression equation. Based on the cognitive characteristics of subjects, substance abuse prevention association with knowledge is not strong enough. [4] Claim that an increase of psychoactive substance use among adolescents is associated with inaccurate information about the risks of the habits. Thus, being consistent with previous findings that although information is inevitable for behaviour change, it is however insufficient to achieve the required change alone [45].

The association between psychosocial skills and substance use prevention reveals that motivation is a good predictor of self-efficacy. The composite score of psychosocial characteristics related to motivation predicted substance abuse prevention. The confirming credence to the findings of this study indicates that adolescents' ability or confidence to 'say no' to any pressure and social norm in relation to substance abuse is a well addressed prevention strategy [46].

Thus, prevention programs that aim to influence self-efficacy skills development in addition to improving substance abuse knowledge are likely to be more effective than drug use education alone. Psychosocial characteristics related to motivation concerning substance abuse prevention was found significantly related to cognitive skills, hence confirming that knowledge is a good predictor of motivation towards substance abuse use prevention. This study is consistent with the study conducted by Fisher & Fisher on the IMB model, the existence of both information and motivation increase the likelihood of preventive health behaviour [47]. A combined interaction between knowledge derived from information, motivation and self-efficacy of undergraduate students towards substance abuse prevention is significantly played out in Self-efficacy. Behavioural skills as has been observed in the

data presented and literature related to behaviour enhancing self-efficacy directly moderate substance-use avoidance among undergraduate students and consistent with the assumption that effective treatment of drug abuse will increase abstinence through self-efficacy [48, 49, and 50].

## **Conclusion**

In conclusion, information-adequacy, self-efficacy, and psychosocial skills combine to moderate behavioural skills that activate substance-use prevention among undergraduate students.

Motivation may seem to be the main ingredients needed to activate self-efficacy and behavioural skill in the dynamics of substance-use prevention among students. This theory may further require experimental study where these variables may be empirically tested. The results suggest that future intervention should strengthen the motivations and behavioural skills of undergraduate students by applying them in drug prevention programmes in institutions of higher learning and possibly high schools.

## **Practice implications**

The operationalization of theoretical and conceptual framework/model in public health research is very essential in providing the validity the study deserve in optimizing opportunity to answer the question of how competent the study is in explaining the dynamics of problem phenomenon in public health. In practice health care professionals should always apply models in understanding the peculiarity of health conditions at each given time in other to encourage patients or clients to adopt the best buys available to improve their condition.

Further research should focus on the dynamics and interaction between Information, motivation and attitudes and some other constructs relevant in improving behaviour geared towards substance abuse prevention.

## **Acknowledgements**

The author express appreciation to all the research assistants who facilitated data collections and entry.

## **References**

- [1]. Abikoye, G. E., and Adekoya, J. A. 2010, Predicting Substance Abuse in a Sample of Nigerian Undergraduate Students: The Role of Core Self-

- Evaluations and Delay of Gratification. *Psychological Studies*, 55 (4), 299 – 307.
- [2]. Adamu, I., and Lawal. Y., 2013, Exploring Parents and Teachers Perceptions on Causes and Effects of Drug Abuse on Academic Pursuit of Students in Selected Secondary Schools in Nasarawa. *Journal of Capital Development in Behavioral Sciences*, 1, 80-93.
- [3]. Adebisi, A. O., Faseru, B., Sangowawa, A. O., and Owoaje. E.T., 2010, Tobacco Use amongst out of School Adolescents in a Local Government Area in Nigeria. *Substance Abuse Treatment, Prevention, and Policy*, 5, 24; doi:10.1186/1747-597X-5-24.
- [4]. Adegboyega, J. A., and Awosusi, A. O., 2012, Predisposing Factors Influencing Psychoactive Substances Consumption among Students in Tertiary Institutions in Nigeria. *British Journal of Humanities and Social Sciences*, 8 (1), 57 – 69.
- [5]. Adeyemo, D. A., 2007, Interpersonal Factors as Correlates of Alcohol Use among Secondary School Adolescents in Oyo State, Nigeria. *Anthropologist*, 9(4): (2007). 321 – 326.
- [6]. Akinture, I. O., and Adegboyega, J. A., 2012, Psychoactive Substance Consumption and Awareness of Health Effects among Students in Tertiary Institutions in Ekiti State, Nigeria. *Journal of Emerging Trends in Educational Research and Policy Studies*, 3(3), 257 – 262.
- [7]. Amico, K. R., Toro-Alfonso, J. and fisher, J. D., 2005, An empirical test of the Information, Motivation and Behavioral Skills model of antiretroviral therapy adherence. *AIDS Care*, 17(6): (2005). 661 – 673.
- [8]. Anderson, E. S., Wagstaff, D. A., Heckman, T. G., Winett, R. A, Roffman, R. A, Solomon, L. J, Cargill, V., Kelly, J. A. and Sikkema, K. J. (2006). Information-Motivation-Behavioral Skills (IMB) Model: Testing Direct and Mediated Treatment Effects on Condom Use among Women in Low-Income Housing. *Annals of Behavioral Medicine: A Publication of Behavioral Medicine*, 31(1), 70 – 79.
- [9]. Atoyebi, O. A., and Atoyebi, O. E., 2013, Pattern of Substance Abuse among Senior Secondary School Students in a Southwestern Nigerian City. *International Review of Social Sciences and Humanities*, 4 (2), 54 – 65.
- [10]. Audu, M., 2010, Drug Abuse and Drug Dependence Treatment Situation. *Substance Abuse Treatment & Rehabilitation Centre, Plateau State. Vom Chirstian Hospital Premises.* (2010).
- [11]. Baba, T. A., Ganai, A. M., Qadri, S. S., Margoob, M. A., Iqbal, Q. M., and Khan, Z. A. 2013, An Epidemiological Study on Substance Abuse among College Students of North India; Kashmir valley. *International Journal Medical Science and Public Health*. 2013; 2(3): 562-567. Doi: 10.5455/ijmsph.2013.080420131.
- [12]. Basse, U. M., Makinde, B., Ajani, I. R., and Olumide, O.M., 2013, Relationship between Drug Abuse and Deviant Behavior among Undergraduate Students of University of Lagos, Nigeria. *American International Journal of Social Science*, 2 (6), 63-69.
- [13]. Bezinović, P., and Malatestinić. D., 2009, Perceived Exposure to Substance Use and Risk-taking Behavior in Early Adolescence: Cross-sectional Study. *Croatian Medical Journal*, 50 (2), 157–164.
- [14]. Cai, Y., Ye, X., Shi, R., Xu, G., Shen, L., Ren, J., and Huang, H., 2013, Predictors of Consistent Condom use based on the Information-Motivation-Behavior Skill (IMB) Model among Senior high School Students in three Coastal cities in China. *Bio-Med Central Infectious Diseases*, 13,262.
- [15]. Chado, M., 2014, Drug Abuse/Addicts in Schools; the Role of School Counselor. *New York Science Journal*, 7 (2), 62 – 65.
- [16]. Choi, H. J., Krieger, J. L., and Hecht, M. L., 2013, Re-conceptualizing Efficacy in Substance Use Prevention Research: Refusal Response Efficacy and Drug Resistance Self-Efficacy in Adolescent Substance Use. *Health Communication*, 28 (1): (2013). 40 – 52.
- [17]. Connor, J. P., George, S. M., Gullo, M. J., Kelly, A. B., and McD, R., 2011, Young. A Prospective Study of Alcohol Expectancies and Self-Efficacy as Predictors of Young Adolescent Alcohol Misuse. *Alcohol and Alcoholism*, 46 (2), 161–169.
- [18]. Dankani, I. M., 2012, Abuse of Cough Syrups: A New Trend in Drug Abuse in Northwestern Nigerian States of Kano, Sokoto, Katsina, Zamfara and Kebbi. *International Journal of Physical and Social Sciences*, 2, (8), 199 – 213.
- [19]. Donenberg, G. R., Schwartz, R. M., Emerson, E., Wilson, H. W., F.B. Bryant, F. B., and Coleman, G., 2005, Applying a Cognitive–Behavioral Model of HIV Risk to Youths in Psychiatric Care. *AIDS Education Prevention*, 17(3), 200 – 216.
- [20]. Dumbili, E. 2013, Changing Patterns of Alcohol Consumption in Nigeria: An Exploration of Responsible factors and Consequences. *A Journal of the BSA Medical Sociology Group*, 7 (1), 20 – 33.
- [21]. Ekpenyong, S. N., 2012, Drug Abuse in Nigerian Schools: A Study of Selected Secondary Institutions in Bayelsa State, South-South, Nigeria. *International Journal of Scientific Research in Education*, 5(3), 260 – 268.
- [22]. Fareo, D. O. 2012, Drug Abuse among Nigerian Adolescents Strategies for Counseling in Nigeria. *The*

*Journal of International Social Research*, 5 (20), 341 – 347.

[23]. Fisher, J. D. and Fisher, W. A., 2002, *The information-motivation-behavioral skills model*. In Ralph J. DiClemente, R. A. Crosby, and M. C. Kegler (Eds), *Emerging theories in Health Promotion Practice and research: Strategies for improving Public health*. Pub. Jossey-Bass.

[24]. Frost, R., 2008, *Health Promotion Theories and Models for Program Planning and Implementation*. Arizona; Mel & Enid Zuckerman College of Public Health University.

[25]. Fisher, W. A., Fisher, J. D., and Harman, J. J., 2003, *The Information, Motivation, Behavioral, Skills Model as a General Model of Health Behavior Change: Theoretical Approaches to Individual-level Change*. In: J. Suls, & K. Wallston (Eds.), *Social psychological foundations of health* (pp. 127 -153). London: Blackwell.

[26]. Kaplan, A. S., 1996, *Social Psychology*. In: Onike, R. ed *Causes-Effects of Drug Abuse: Implications for Social Studies Teaching* retrieved from <http://searchwarp.com/Rahaman>. Retrieved March 2, 2014.

[27]. Lam, C. M., Lau, P., Law, Y. S. B., and Poon, Y. H., 2011, *Using Positive Youth Development Constructs to Design a Drug Education Curriculum for Junior Secondary Students in Hong Kong*. *Scientific World Journal*, 11, 2339 – 2347.

[28]. Litt, M. D., Kadden, R. M., and Petry, N. M., 2013, *Behavioral Treatment for Marijuana Dependence: Randomized Trial of Contingency Management and Self-Efficacy Enhancement*. *Addiction Behavior*, 38 (3), 1764 - 1775.

[29]. Lock, C., Wilson, G., Kaner, E., Cassidy, P., Christie, M. M., & Heather, N. A., 2010, *Survey of General Practitioners' Knowledge, Attitudes and Practices Regarding the Prevention and Management of Alcohol-Related Problems: An Update of a World Health Organization Survey Ten Years On*. UK, Institute of Health & Society William Leech Building Newcastle University, NE2 4HH; (2010).

[30]. Maisto, S. A., Carey, M. P., Carey, K. B., Gordon, C. M., and Schum, J. L., 2004, *Effects of Alcohol and Expectancies on Hiv-Related Risk Perception and Behavioral Skills in Heterosexual Women*. *Experimental and Clinical Psychopharmacology*, 12(4), 288-297.

[31]. Minervini, I., Palandri, S., Bianchi, S., L. Bastiani, L., and Paffi, D., 2011, *Desire and Coping Self-Efficacy as Craving Measures in Addiction: The Self-Efficacy and Desire Scale (SAD)*. *The Open Behavioral Science Journal*, 5, 1-7.

[32]. Moskalewicz, J. and Sieroslowski, J., 2011, *Drinking population Surveys – Guidance Document for Standardized Approach: Final Report Prepared for the Project Standardizing Measurement of Alcohol-Related Troubles (SMART)*. *Institute of Psychiatry and Neurology*, 1 – 65.

[33]. Ndom, R. J. E., Igbokwe, D. O. and Ekeruo, N., 2012, *Students' Opinion on Substance Use, Violent Behavior and Possible Intervention Strategies in A Nigerian Public University*. *European Scientific Journal*, 8 (19), 191 – 121.

[34]. Nwankwo, B. O., Nwoke, E. U., Chukwuocha, U. M., Chukwuocha, A. O., Nwoga, K. S., Iwuagwu, U. O. & Okereke, C., 2010, *Prevalence and Predictors of Anti-Social Behaviours: A Cross Sectional Survey of Adolescents in Secondary Schools in Owerri Municipal, South East Nigeria*. *Pakistan Journal of Social Sciences*, 7 (2), 129 – 136.

[35]. Obot, I. S., 2013, *Prevention and Treatment of Drug Dependence in West Africa*. Accra, the West Africa Commission on the Impact of Drug Trafficking on Security, Governance and Development in West Africa (WACD) Background Paper, 2, 1 – 17.

[36]. Odeyemi, K. A., Osibogun, A., Akinsete, A. O., and Sadiq, L., 2009, *The Prevalence and Predictors of Cigarette Smoking among Secondary School Students in Nigeria*. *Niger Postgraduate Medical Journal*, 16(1), 40 – 45.

[37]. Ogborne, A. C., 2010, *Theories of Addiction and Implications for Counseling*. Alcohol and Drug Problems: A Practical Guide for Counselors. Retrieved February 10, 2014. <https://knowledgex.camh.net/amhspecialists/guidelines>.

[38]. Ogborne, A. C., 2004 *Theories of Addiction and Implications for Counseling*. Alcohol & Drug Problems: A Practical Guide for Counselors, retrieved from <https://knowledgex.camh.net/amhspecialists/guidelines>.

[39]. Okunbor A.O. and Agwubike E. O., 2009, *Gender Differences in Forestalling Antisocial Behavior among Students Fitness Aspirants and Recreationists in Nigerian Universities*. *College Student Journal*, 42, 2; ISSN: 0146-3934.

[40]. Onongha, G. I., 2012, *The Influence of some Factors on Alcohol Use and Abuse among Education Students of Osun State University, Nigeria*. College of Education Ipetu-Ijesa Campus Osun State University Nigeria. *International Journal of Humanities and Social Science*, 2, 11.

[41]. Oshodi, O. Y., Aina, O. F. and Onajole, A. T., 2010, *Substance use among Secondary School*

- Students in an urban setting in Nigeria: Prevalence and Associated Factors. *African Journal of Psychiatry*, 13:52-57.
- [42]. Reda, A. A., Moges, A., Yazew, B. and Biadgilign, S., 2012, Determinants of Cigarette Smoking among School Adolescents in Eastern Ethiopia: A Cross-sectional Study. *Harm Reduction Journal*, 10 (9): 39.
- [43]. Simons-Morton, B. G. and Farhat, T., 2010, Recent Findings on Peer Group Influences on Adolescent Smoking. *Journal Primary Prevent.* 31(4),191 – 208.
- [44]. Stella-Kaiser, D., Schörner, B, and Giacomuzzi, S. 2012, On the Effectiveness of Drug Prevention in School: Effects of Peer based and Adult-Led Drug Prevention on Self Efficacy and Substance Use among Secondary-School Students. *The Open Addiction Journal*, 5, 51-62.
- [45]. Substance Abuse and Mental Health Services Administration (SAMHSA). 2013, *Results from the 2012 National Survey on Drug Use and Health: Summary of National Findings*, NSDUH Series H-46, HHS Publication No. 1 (SMA) 13-4795. Rockville, MD:  
<http://www.samhsa.gov/data/NSDUH/2012SummNatFindDetTables/Index.aspx>.
- [46]. Zhang, H., Liao, M., Nie, X., Pan, R., Wang, C., Ruan, S. Zhang, C., Tao, X., Kang, D., and Jiang, B. 2011, Predictors of consistent condom use based on the Information-Motivation-Behavioral Skills (IMB) model among female sex workers in Jinan, China. *BMC Public Health*, 11,113.
- [47]. Wu, C. S. T., Wong, H. T., Chou, L. Y., To, B. P. W., Lee, W, L., and Loke, A. Y. 2014, Correlates of Protective Motivation Theory (PMT) to Adolescents' Drug Use Intention. *International Journal of Environmental Research and Public Health*, 11(1), 671 – 684.
- [48]. The United Nations Office on Drugs and Crime (UNODC) *World Drug Report*. United Nations publication, Sales No. E.13.XI.6,  
[https://www.unodc.org/unodc/secured/wdr/wdr2013/WorldDrugReport.\(2013\).](https://www.unodc.org/unodc/secured/wdr/wdr2013/WorldDrugReport.(2013).)
- [49]. Victor, C. and Strasburger, M. D. 2010, Children, Adolescents, Substance Abuse, and the Media. *Pediatrics*, 126 (4): 791 -799.
- [50]. Winters, K. C. and Lee, C. S. 2008, Likelihood of Developing an Alcohol and Cannabis use Disorder during Youth: Association with Recent use and age. *Drug and Alcohol Dependence*, 92 (1-3): 239–247.
- [51]. World Health Organization 2013, *Young people: Health Risks and Solutions*, Fact sheet N°345 online, Retrieved Nov 3, 2013.
- [52]. Wouters, H., Bouvy, M. L., Van Geffen, E. C. G., Gardarsdottir, H., Stiggelbout, A. M. and Van Dijk, L.2014, Antidepressants in Primary Care: Patients' Experiences, perceptions, self-efficacy beliefs, and non-adherence. *Patient Preference and Adherence*, 8, 179–190.