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Cultural adaptation of condom use self efficacy scale in Ghana

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Abstract

Accurate assessment of self-reports of sexual behaviors are vital to the evaluation of HIV prevention and family planning interventions. This investigation was to determine the cross-cultural suitability of the Condom Use Self Efficacy Scale (CUSES) for Ghana. A survey using a sample of 520 aged 17 to 32 years from Ghana completed the anonymous scale. A Principal Component Analysis identified a 14 item scale with four reliable factors labeled Appropriation (Cronbach alpha=.85), Assertive (Cronbach alpha=.90), Pleasure and Intoxicant (Cronbach alpha=.83), and STDs (Cronbach alpha=.81) that altogether explained 73.72% of total variance. The scale correlated well with a measure of actual condom use (r=.73), indicating evidence of construct validity. The factor loadings were similar to the original scale but not identical suggesting relevant cultural variations. The study therefore cautioned researchers against the use of the original CUSES without validation in African settings and contexts

Key Words: young people; sexual behavior; HIV/AIDS Intervention

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INTRODUCTION

HIV/AIDS infections continue to be one of the world's greatest challenges as no vaccines have been found for curative treatment of the deadly disease. The HIV virus is mainly spread through sexual intercourse and the only hope to prevent infection remains modification of sexual behaviours requiring abstinence, being faithful to one's partner and condom usage. Condoms offer safe, economically cheap and practically effective means of preventing both unwanted pregnancies and sexually transmitted infections including HIV/AIDS when used consistently and properly. This prevention strategy is however hindered by low use of condom especially by people living in areas with HIV/AIDS epidemic although condoms are readily available. Condom use in Ghana is estimated at 31.8% and 42% for female and male respectively (UN Statistics Division 2006). Few young people use condom at sexual debut, and Jemmoth and Jemmott (1991) found that only 20% of sexually experienced unmarried young people always use condom. In a study it was found that among married couples, unprotected sex demonstrates intimacy and trust between partners (Kumar et al 2008) and so partners avoid condom use thus compromising STIs safety to establish commitment. Insistence on protected sex or condom use is also seen in some cultures as a suspicion of infidelity among partners (Kumar 2004). These low condom use are against the evidence reported by researchers that reported knowledge of HIV/AIDS is high (Ogbuji 2005).

Whiles young people's sexual behaviors take place in complex socio-cultural settings and motivations for condom use are complex and intricate involving a range of levels such as individual, couple and community (Coats 2007) there is urgent need to understand factors influencing condom use to inform designing of effective preventive strategies (Smith & Watkin 2005, Desmond et al 2005). Availability of condoms is important but the evidence so far suggests that other factors must be at play for individuals to actually use them. Consistent condom use is linked to high levels of self efficacy (Bradford & Beck 1991). Self efficacy emphasize the individual and entails general influences that "concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses" (Bandura 1986, p 391). Self efficacy reflects a person's level of confidence in his or her ability to control one's environment (Forsyth & Carey 1998). A person whose cognitive self-evaluation or judgment of their capabilities is high is able to influence all manner of his or her human experiences. However, a good predictor of ones condom use intentions can only aid effective intervention programs if efficacy related to condom use can be reliably and

validly measured (Mahoney, Thombs & Ford 1995). Thus to further investigate self efficacy correlates of intended and actual condom use a valid, reliable and responsive outcome is demanded. There is no such measure specifically developed for use in Ghana which calls for either developing a new scale or adapting and validating an existing one. Adapting an existing one is both economically effective and practical and has the added advantage of permitting comparisons with data from other parts of the world. Several parameters have been specifically developed to evaluate condom use self efficacy and their impact on actual condom use (Hanna 1999) with moderate success achieved.

The Condom Use Self Efficacy Scale (CUSES) developed by Bradford and Beck represents one such valid and reliable instrument that is quick and easy to administer and can readily be scored (Bradford & Beck 1991). The CUSES originally developed for English speaking American population has wide acceptance and has been translated, adapted and used in several countries (Bradford & Beck, 1991; Brien, Thombs, Mahoney, & Wallnau, 1994; Cecil & Pinkerton, 1998; Polacsek, Celentano, O'Campo, & Santelli, 1999; Sands, Archer, & Puleo, 1998; Wulfert & Wan, 1993; Dilorio, Maibach, O'Leary, Sanderson, & Celentano, 1997). The CUSES which has 4 subscales and 13 more unassociated items offers a comprehensive approach to assess condom use self efficacy in new settings without much alteration, addition or removal of items from the scale. Despite the wide use of the CUSES in studies conducted in Africa (Peltzer 2000a; Peltzer 2000b; Reddy et al 2000; Meekers & Klein 2001; Sayles et al 2006; Hendriksen et al 2007; Schaalma et al 2009) the scale has not been validated. Cross cultural adaptation and validation of the CUSES for Ghana would represent a major advance in the process of identifying condom use behaviors of young people in Ghana and would facilitate collaborative studies in comparing studies in Ghana with other countries. Therefore the aims of the study are to validate the psychometric properties of the CUSES in Ghana; analyse the factor structure of the questionnaire; and to evaluate the predictive power (construct validity) of the CUSES-Ghana version by comparing it with intended and actual condom use among university students.

METHOD

Sample and participants

The sample in the study comprised of 518 students of Regent University College of Science and Technology, a private university in the capital city of Ghana, Accra. The researchers are staff of the university and that explained the convenient sample chosen for the study. The sample size represents 98% of response rate from eligible prospective individuals approached to take part in the study.

Measures

Demographic Data: Participants personal characteristics such as age, sex, year in university, religious affiliation, place of residence (affluence area or otherwise), mothers educational level, ethnic background, marital status, sexual intercourse experience, and condom use.

Self efficacy: The Condom Uses Self Efficacy Scale (CUSES) was administered to the participants to assess condom use self efficacy. The measure consists of items about individual's perceived ability to use condoms with a higher internal consistency (Cronbach alpha of .91 and a two-week test-retest reliability of .81. The CUSES uses a 5-point Likert scale that ranges from strongly agree to strongly disagree. Higher scores indicate stronger or higher perception of condom use efficacy, after reversing negatively worded items. The scale contains 28 items (Brafford and Beck, 1991), but a later analysis to find subscales left 13 items unassigned (Brien et al., 1994). The original CUSES has four subscales (Brien et al., 1994): Mechanics (items 1, 27, 14, 22); Partner Disapproval (items 9, 10, 16, 17, 18); Assertive (items 4, 5, 6); Intoxicants (items 24, 25, 28) with internal consistencies of .78, .81, .80 and .82 respectively. The total score range from 0 to 112 when all items are summed up.

Procedure

A list of registered courses for the semester was collected from the university registry and the researchers contacted fellow university lecturers from different programs in the university and asked them if they would explain the research to students and hand out the questionnaires. All lecturers contacted agreed except one who explained that the students would have to move just after the class to a different lecture immediately after the her lesson and she is not prepared to offer the last 20 minutes of her lecture period for the purpose of

this research. The participants were appropriately informed about the rationale of the survey and the voluntary nature of it, and they were appropriately assured of the anonymity and confidentiality of their answers. The students were informed not to indicate their names on the form. Finally, the students were asked if they had understood these instructions and they were again reminded that their non-participation would not result in any negative consequences for them in anyway whatsoever. The questionnaires were then distributed to all students in the class as none indicated otherwise. The researchers count the number of questionnaires distributed. Thus the anonymous survey questionnaire was administered to the students in their lecture halls. These took place at the end of their classes, and students then filled in the questionnaires and left them on their desks which the researchers collected after all students are gone, checked them for completion and counts the number filled; the questionnaire took on average 20 min to complete. The survey was filled out during a 1-h course. Participation was not required and students had the opportunity to refuse cooperation. In all, three students did not answer any item at all on the forms whilst two questionnaires were not left on the desk. Thus non respondents were 5.

Analyses

The Statistical Package for Social Scientist (SPSS) version 16 software program was used for the data analyses. Descriptive analyses on Means, Standard Deviations, Frequencies and Percentages were initially performed as data cleaning technique. Then a Principal Component Analysis (PCA), varimux rotation a useful statistical technique was applied on the data as the technique is common and relevant for findings patterns, hidden and simplified structures that often underlie data of high dimension such as the one in this study. In the analysis all the items on the CUSES were entered on an equal footing. In the first PCA conducted 8 components were extracted with eigenvalues greater than 1 that would explain 75.02% of the total variance. The PCA designation criteria adopted require that Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) be greater than 0.50 for each individual item as well as the set of items for their inclusion in a subsequent analysis. The overall MSA for the set of items included in the first analysis was 0.746 with a significant Bartlett test of Sphericity probability of < 0.001. However the MSA for some of the individual variables were less than 0.50 and were therefore excluded. In subsequent analyses, commonalities for variables that were less than 0.50 were also excluded from further analysis. Complex structures where one variable has high loadings or correlations (0.40 or

greater) on more than one component were removed from the analysis. The step by step adherence to these designation criteria eliminated 14 items in the final PCA and extracted 4 factors. Internal consistencies for the scale were assessed by computing Cronbach's alpha and item-total correlation coefficients.

RESULTS

Descriptive Data

The 511 participants that completed the scale comprised of 54% males (n = 280) and 46% (n = 238) females with a mean age of 21.59 (SD = 4.74). Majority of the students (93.2%) are Christians and 74.3% were in the first year. Approximately 60%of the participants attended public senior secondary school and 59.5% lived in affluent areas of Accra, Ghana's capital with their parents. Although 87.8% (n = 455) of the participants are single and never married, approximately 82% (n = 426) of them reported been sexually active (have engaged in sexual intercourse. However, only 48% (n = 205) reported that they used condom during their last sexual encounter.

Inferential Analysis (construction of CUSES)

The PCA identified a 14 - item scale (CUSES-G) with high internal consistency (.91) that comprised of 4 main factors which we subsequently named "Appropriation", "Assertive", "Pleasure and Intoxicant", and "STDs" respectively. The total scale in the final analysis accounted for 73.72% of the total variance (Table 1) and has an MSA of 0.736 with a significant Bartlett test of Sphericity probability of < 0.001. Factor 1 accounted for 36.7% of the variance and consists of five items with a high internal consistency (.85). Factor 2, with three items accounted for 15.3% of the variance. Factor 3 accounted for 11.6% of the variance and consists of 3 items. The fourth and final factor accounted for 10.1% of the variance and consists of 3 items. Cronbach alpha coefficient for factor 2, factor 3 and factor 4 were .90, .83, .81 respectively. These internal consistencies are comparable to that of the original CUSES (Table 2). The factors also show between moderate to high inter-item correlation (Table 3). External validity of the extracted scale was evaluated by analyzing association between the scale, and condom use. Table 4 outlines these associations. Higher scores on each of the subscales (factors) as well as the total scale are positively correlated with higher condom use at last sexual encounter. A complementary independent t-test

analysis on self efficacy between students who used condom at last sexual encounter and those who did not confirmed the associations reported in table 4. Students who used condom at last sexual encounter were significantly higher on condom self efficacy than those who did not ($t = 21.96$, $p < .001$, Cohen $d = 1.98$) with an effect size correlation of 1.98 (see Table 5).

DISCUSSIONS

This study was undertaken to evaluate the appropriateness and practicability of the Condom Use Self Efficacy Scale (CUSES) among Ghanaian university students. Previous researches (Bradford and Beck 1991; Brien et al 1994; Langer et al 1994; Barkley and Burn 2000) tested the scale against a sample of diverse geographically diverse populations and found some cultural diversity, although the scale was found to have good reliability and construct validity. This calls for cultural adaptation and validation of the scale before it becomes a sound instrument and a good predictor of condom use for populations different from the original American young people the scale was constructed for. However, despite the use of the scale in several studies in Africa, the literature revealed that this is the first work designed to validate the factorial dimensions of the scale in Africa.

Consistent with Bradford and Beck (1991) but with notable variations, the present study identified 4 factors (Appropriateness, Assertive, Pleasure and Intoxicants, and STDs) from the CUSES analysis that appear to be related to different dimensions of condom use self efficacy among Ghanaian youth. The notable and relevant differences on particular items that loaded on each factor identified in the study presumably reflect cultural differences related to condom use self efficacy in Ghana. The present investigation contributes to the growing literature showing that behavioral. It extends this literature by showing that the

The first factor which we called “Appropriateness” is much closely linked to the one labeled “Mechanics” by Brien et al (1994) than the “Appropriation” label that Barkley and Burns (2000) found. Two items (I feel confident in my ability to put a condom on myself or my partner, and I feel confident in my ability to put a condom on myself or my partner quickly) well loaded in Brien et al (1994) label were replaced by three other items (I would feel embarrassed to put a condom on myself or my partner, I feel confident in my ability to incorporate putting a condom on myself or my partner into foreplay, and I feel confident that I could use a condom with a partner without "breaking the mood”). This factor dimension is

indicative of self efficacy related to multifaceted appropriate condom use skills by self or to a partner.

The second factor noted in this study is consistent with the "Assertive" label that Brien and colleagues found (Brien et al 1994) and shares the same items. We also called this factor "Assertive" as the loaded items are related to self efficacy dimensions of assertiveness, negotiation skills and ability to persuade a partner to use a condom. The emergence of this factor is indicative that Ghanaian adolescents and young adults, like their American counterparts are becoming more confident in their ability to persuade, negotiate and discuss condom use with a partner, presumably because of increased awareness of risks associated with its non usage. Observing that Ghanaian culture has a more conservative, religious and traditional beliefs about sexuality, marriage and condom use, the identification of this factor is encouraging. The third factor we identified, called "Pleasure and Intoxicants" is indicative of the ability to use condoms while under the influence of alcohol or drugs without feeling a reduction in sexual sensation. This factor is related to "Intoxicants" identified by Brien et al 1994.

The final factor called "STDs" was the same as the one Barkley and Burn found. Barkley and Burn (2000) suggested that items on this factor involve fear (afraid) that may trigger physiological arousal suggesting that the factor represents the physiological feedback component of self efficacy. The "STDs" is closely linked to "Partner Disapproval" that Brien et al (1994) labelled except that two of their items (If I were to suggest using a condom to a partner, I would feel afraid that he or she would reject me and If I were unsure of my partner's feelings about using condoms, I would not suggest using one) could not have loads greater than 0.40 in our analysis. STDs especially HIV/AIDS have gained prominence as global health epidemic in recent years than say 20 years ago. All the items on the factor are related to stigma associated with STDs. Plausibly, this could underlie the emergence of STDs related items as a factor in the present study and that conducted by Barkley and Burn (2000) and not in the case of Brien et al studies conducted 25 years ago (Brien et al 1994).

The changes in the composition of items that loaded on some of the factors identified in this study compared with earlier researches (Brien et al 1994, Barkley and Burna 2000) indicate that cultural diversities are real when it comes to condom use self efficacy. Discussions and

condom use are uncomfortable issues in cultures that regard premarital sex and condom use as violation of religious, social and traditional norms.

We examined the external validity of the factors by evaluating their association with actual condom use during the last sexual encounter. A bivarate correlation verified that the identified factors accurately represent condom use self efficacy and independently correlated positively with actual condom use. This finding was further supported by an independent t test analysis comparing those who used condom and those who did not on the various factors identified. This demonstrates that perceived condom use self efficacy is an important predictor of condom use. Higher perceived condom self efficacy seems to be related to control over sexual pleasure under the influence of alcohol and drugs, good appraisal of anticipated risks of STDs in sexual encounter situations, good assertiveness and enhance negotiation skills.

The findings of the present investigation should be interpreted with caution. The results are based on a convenience sample. The findings may not be generalized to the entire Ghanaian youth.

CONCLUSION

Health education and promotion require valid and reliable instrument as assessment of behavioral skills is critical to the evaluation of HIV prevention interventions. The findings of the study show that the CUSES is an appropriate scale to assess condom use self efficacy among Ghanaian university students thus contributing to efforts aimed at validating the CUSES for cross cultural research. The scale accounted for a reasonable proportion of the variance (73.72%), showed good internal consistency (.93) similar to those reported by earlier validation studies (Brien et al 1994; Barkley and Burns 2000) and had satisfactory construct validity as analyzed by actual condom use during the last sexual encounter. The most important finding, however, involves observation of relevant cultural diversity evidence by the identification of particular items that loads on a factor. The cultural diversity has also been noted in other studies (Barkley and Burns 2000). This evidence suggests that the use of non-validated CUSES in other studies in African cultures could cause spurious findings. The present study thus contributes to the growing need for validation of behavioural instruments in diverse populations to aid cross cultural comparisons of research findings.

Competing interests

The authors declare that they have no competing interests

Authors' contributions

Both authors contributed equally to the design, data collection and analysis. PND drafted the initial manuscript, and both authors read, edited and approved the final manuscript.

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TABLES

Table 1: Factor Structure and Factor Loading on the CUSES using Rotation Method: Varimax with Kaiser Normalization

			Components			
	M	SD	*1*	*2*	*3*	*4*
Percentage of Total Variance Explained			36.7	15.3	11.6	10.1
FACTOR 1: APPROPRIATION						
I would feel embarrassed to put a condom on myself or my partner	1.52	1.49	.683			
I feel confident I could gracefully remove and dispose of a condom when we have intercourse	1.52	1.24	.744			
I feel confident in my ability to incorporate putting a condom on myself or my partner into foreplay	1.77	1.31	685			
I feel confident that I could use a condom with a partner without "breaking the mood."	1.73	1.24	.809			
I feel confident that I could use a condom successfully	1.32	1.23	.820			
FACTOR 2: ASSERTIVE						
I feel confident in my ability to discuss condom usage with any partner I might have	1.21	1.24		.877		
I feel confident in my ability to suggest using condoms with a new partner	1.41	1.32		.888		
I feel confident I could suggest using a condom without my partner feeling "diseased"	1.67	1.28		.844		
FACTOR 3: PLEASURE AND INTOXICANT						
I feel confident I could use a condom during intercourse without reducing any sexual sensations	1.52	1.22			.726	

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I feel confident that I would remember to use a condom even after I have been drinking	1.78	1.08	.863
I feel confident that I would remember to use a condom even if I were high.	1.70	1.04	.900
FACTOR 4: STDs			
I would not feel confident suggesting using condoms with a new partner because I would be afraid he or she would think I've had a homosexual experience	1.10	1.27	.671
I would not feel confident suggesting using condoms with a new partner because I would be afraid he or she would think I have a sexually transmitted disease	1.11	1.32	.934
I would not feel confident suggesting using condoms with a new partner because I would be afraid he or she would think I thought they had a sexually transmitted disease	1.10	1.27	.903

Table 2: Comparisons of factor structure internal consistencies of the present study and the Original CUSES Scale

Factors	Original CUSES		Present Study	
	Items	Alpha	Items	Alpha
Factor 1	4	.78	5	.85
Factor 2	5	.81	3	.90
Factor 3	3	.80	3	.83
Factor 4	3	.82	3	.81
Total Scale	15	.91	14	.93

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Table 3: Inter-Item Correlation Matrix of the factors of the CUSES scale

Factors	Total Scale
Factor 1 (Appropriation)	.850
Factor 2 (Assertive)	.703
Factor 3 (Pleasure and Intoxicant)	.652
Factor 4 (STDs)	.506

Table 4: Correlation between the CUSES scale and condom use

Source	Appropriation	Assertive	Pleasure and Intoxicant	STDs	Total scale
Assertive (n = 511)	.463**	_____	_____	_____	_____
Pleasure and Intoxicant (n = 511).	.436**	.358**	_____	_____	_____
STDs (n = 511)	.242**	.113*	112*	_____	_____
Total scale (n = 511)	.850**	.703**	.652**	.506**	_____
Condom used at last sex (n = 426)	.527**	.550**	.387**	.544**	.730**

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

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Table 5: Condom use self efficacy comparison between condom users and non-users during last sexual encounter

	t	Cohen d	Effect-size r
Factor 1	12.77	1.23	0.52
Factor 2	13.52	1.17	0.51
Factor 3	8.72	0.97	0.44
Factor 4	13.47	1.02	0.45
Scale (total)	21.96	1.98	0.70

All t values are significant at the 0.01 level (2-tailed)