

Effectiveness of a situationally-based HIV risk-reduction intervention for the Nigerian Uniformed Services on readiness to adopt condom use with casual partners

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Abstract

Nigerian uniformed services personnel are at risk of HIV/AIDS infection when they are stationed in areas of high HIV prevalence. Yet, only a limited number of studies have evaluated the effectiveness of HIV/AIDS risk-reduction interventions for Nigerian uniformed services personnel who serve on peacekeeping missions. The goal of the present study was to evaluate the effectiveness of a situationally-based HIV risk-reduction intervention for the Nigerian uniformed services on readiness to adopt condom use with casual partners. Men and women (N=2209) from two purposely-selected regiments from the same service were assigned to either a five-session HIV prevention interactive condition or a wait-list control condition. The intervention consisted of five possible modules that were presented to groups of up to 50 personnel. The intervention aimed to increase condom use with regular and casual partners. Data were collected on reported sexual behaviors, condom beliefs, stages of change for condom use, and sexual risk behaviors with casual partners. Participation in the intervention resulted in increased condom use with casual partners at 6- and 12-months follow-up assessments. Specifically, 36% of the participants in both regiments reported that they hadn't even thought of using condoms with a casual partner at baseline. However, a positive intervention effect was observed in the intervention, but not the control regiment at the 6-months (40% vs. 0.9%) and 12-months' (46.8% vs. 4.3%) follow-up assessments (p < 0.05). These data confirm that a situationally-based intervention with uniformed service personnel in West Africa has a significant and powerful impact on reported readiness to engage in HIV-preventive activities with casual partners, and specifically, condom use.

KEYWORDS: Nigeria, security forces, HIV, AIDS, risk behaviors

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Introduction

The devastating impact of the HIV/AIDS epidemic on sub-Saharan Africa is increasingly being recognized by the scientific community. Forty two million cases of HIV/AIDS have been diagnosed worldwide, of which twenty-nine million cases have been reported in sub-Saharan Africa (Kristoffersson, 2003). While the HIV epidemic has been slower to impact Nigeria than many other countries in the region, research evidence suggests that HIV prevalence in Nigeria is high, as well as geographically and socially distributed. For example, Esu-Williams et al (1997) report that in a sample of 2300 persons from five states in Nigeria, HIV-1 appears in over 60% of commercial sex workers (CSW), 8% of blood donors in some states and in 8%, 9%, and 21% of male clients of CSWs, truck drivers, and STD patients, respectively. Their data suggest a rural HIV/AIDS epidemic.

Several groups have been identified as being at high risk of acquiring HIV/AIDS in Africa, including uniformed services personnel and long distance truck drivers. The rates of HIV infection in uniformed services personnel have been observed to be seven to ten times higher than the rates in civilian populations (Miles, 2004; Fleshman, 2001; Newman et al, 2001). Current estimates indicate that the rate of HIV infection among uniformed services personnel in Africa ranges from 10 to 75%, with Zimbabwe and Malawi having the highest infection rates in the continent (Miles, 2004). A United States Intelligence Council Report has suggested that the rate of infection in the uniformed services is higher than the rate in the general public (Gordon, 2002). Yet, only a limited number of studies have examined the characteristics of sexual risk behaviors in the Nigerian uniformed services, and no scientifically rigorous interventions have been conducted or shown to be effective in preventing HIV transmission in this highly vulnerable group.

The Nigerian uniformed services are at particularly heightened risk of HIV infection because of several sociocultural and economic factors. Nigeria recently transitioned from a military dictatorship to a re-emerging democracy. As one of the most populated and significant countries in Africa (population > 130 million), Nigeria has a large uniformed services which was well funded under the previous military dictatorship. As such, Nigerian uniformed services personnel play a major role as peacekeepers both within the region and for the United Nations. Nigerian peacekeepers have recently been or are currently serving in Liberia, Sierra Leone, Zaire, Sudan, and Somalia. Further, there is unrest within Nigeria characterized mainly by religious affiliations (between the mainly Christian south and the Muslim north) and the Nigerian uniformed services personnel are often called upon to keep the peace within the Nigerian federation. As a consequence, the Nigerian uniformed services personnel are characterized by being separated from family and spouses and are frequently mobile both nationally and internationally. Bazergan (2002) notes that peacekeepers that serve in high prevalence areas could contract HIV infection in the field and bring the infection home to their families, and they could also serve as vectors, increasing the risk of infection in mission areas.

Apart from social and economic factors, misperceptions about HIV transmission may also contribute to the efficiency of HIV transmission in this population. Nwokoji and Ajuwon (2004) assessed HIV/AIDS knowledge and HIV sexual risk behaviors in the Nigerian uniformed services by surveying 480 military personnel in Lagos, Nigeria. The results revealed that although the overall knowledge score was high (7.1 on a 10 point scale), 52% of the respondents

believed that there was a cure for AIDS and that one can contract HIV by sharing personal items with an infected person. The majority of the respondents (88%) reported having lifetime multiple partners ranging from 1-40 with a mean of 5.1. Thirty two percent said that they have had contact with a commercial sex worker in the past six months and 40% had not used a condom on that occasion. Nwokoji and Ajuwon (2004) concluded that the Nigerian uniformed services constitute a potential bridging group for the dissemination of HIV into the larger population because members of the uniformed services live and interact freely with the civilian population.

In the absence of a cure or vaccine for HIV/AIDS, behavioral change remains the most promising method for preventing the spread of HIV/AIDS (Pequegnat and Stover, 2000). However, a major challenge facing HIV prevention interventionists is the issue of understanding an individual's status in the behavioral change process so that interventions can be tailored to meet the specific needs of individuals in a target population. The present intervention assessed the stages of change for condom use among Nigerian uniformed services personnel as part of a situationally-based HIV/AIDS risk reduction intervention for this population.

Theoretical framework

The Transtheoretical Model of Behavior Change (TM) provides the theoretic underpinning for the present intervention. This model was developed to explain how new behaviors are acquired and the mechanism by which people make purposive behavior change (Parson et al, 2000). According to the TM, people move through a process of change that is determined by degrees of motivation and behavior (Kalichman, 1998; Prochaska et al, 1992). The TM describes a framework for understanding the processes of change, stages of change, self-efficacy and decisional balance and is a means of tailoring education and intervention approaches for health behavior change (Prochaska et al, 1994). There are five stages of change readiness and in relation to condom use, they are: precontemplation (not considering the behavior change in the near future nor recognizing the need for change or feeling that change is possible), contemplation (actively considering condom use but lacking the short term intentions to do so), preparation (having a proximal goal to use condoms and making commitments and initial plans to make this behavior change), action (using condoms consistently and adopting strategies to prevent relapse) and maintenance (using condoms consistently and consolidating the change and integrating it into one's lifestyle). Relapse is also considered at which time the individual may return to the precontemplation, contemplation or action stages. Kalichman (1998) notes that understanding an individual's status in the change process could facilitate the tailoring of HIV prevention efforts. The TM states that a person's place along the stages of change continuum is useful in determining which processes are most helpful in achieving the desired behavior change (Schulz et al, 2001).

Participatory action research

Participatory action research (PAR) "in health is a collaborative approach to research that equitably involves all partners in the research process and recognizes the unique strengths that each brings. PAR begins with a research topic of importance to the community with the aim of combining knowledge and action for social change to improve community health and eliminate health disparities" (Minkler and Wallerstein, 2003a). This method has been identified as a particularly effective way of reducing health disparities in underserved communities and

provides opportunities for interventions to take place outside the traditional setting often used with minority communities such as churches and health clinics (Kim et al, 2004). PAR stresses community collaboration in investigating and acting on locally identified concerns (Minkler et al, 2003b) The methods used in PAR may be qualitative or quantitative but always involve the people whose lives are affected by the topic of consideration and involves a shared commitment by the researcher and the community members (Minkler, 2000). Community members involved in PAR are aware of their community's sociocultural background, experiences, trials, and assets, and are in a unique position to provide peer support for other community members and can use their knowledge, skills and resources to create culturally and linguistically competent programs (Kim et al, 2004).

Methods

The experimental intervention

The intervention was conducted in two phases. In phase one, Nigerian health educators were trained by one of the authors (TMJ). The Nigerian health educators in turn conducted the intervention with the Nigerian uniformed services personnel. Participatory action research was used as the basis for the training. The experimental intervention consisted of five one-hour interactive group sessions, and involved: (1) Defining HIV/AIDS risk situations; (2) Geographical mapping of a typical security location and risk places; (3) Anticipated regrets (linking the situation to its antecedents and aftermath, including role playing); (4) Understanding "hot signs" and their associated locations, contexts, and dangers; and (5) Situational retraining to avoid risk situations and behaviors. The participants were taught in groups of approximately fifty. Copies of the training manual are available from the first author.

Design

The study was conducted in Lagos, Nigeria, the largest city in Africa, with a population of approximately 14 million. Two purposely-selected regiments from the same military service (approximately 1000 people per regiment) stationed on opposite sides of the city were used for the study. A modified version of a Center for AIDS Intervention Research Pridefest survey was used (Center for AIDS Intervention Research, 2003). Data were collected between June and December 2003. Each regiment represented a cohort that was sampled at baseline, and at six and twelve-months follow up. The variable reported in this study (stages of change for condom use) was measured by a single question on the last page of the questionnaire: Which of these statements best describes your current condom use with casual partners in the last six weeks (that is, someone who is not your primary partner). The participants were asked to circle one of the following responses: (1) I do not have any casual partners; (2) I haven't even thought of using condoms with all casual partners yet; (3) I am thinking about using condoms with all casual partners; (4) I am making definite plans to use condoms with all casual partners; (5) I have already used condoms with some, but not all, casual partners; and (6) I am already using condoms with all casual partners. The study was approved by the relevant Institutional Review Boards in both Nigeria and the United States, and the intervention was later made available to the control regiment.

Analysis

Data were entered in Houston, Texas, with quality control involving scanning of a random sample of questionnaires, and comparison of a further random sample of entered questionnaires with the electronic data record. Data were analyzed by calculation of percentages and by chi-square test using SPSS 11.5. Distributions in stages of change at baseline, 6-month and 12-month waves are the dependent variables of interest. The measure for statistical significance was established *a priori* as p<0.05.

Results

Demographic data (N=2209) are presented in Table 1. There were no statistically significant differences between the intervention and control regiments by gender, sexual orientation, and proportion with a main partner. However, there were considerable differences in age groups (more younger people in the control regiment), ethnic background (more Hausa speaking people in the control regiment), level of schooling (more with just elementary school completed in the control regiment), and more in the control regiment who did not know their HIV status. Frequency of condom use with a casual partner in the last six weeks is described in Table 2. Baseline assessment revealed that most of the participants in the control regiment were at the pre-contemplation (36.9%) and contemplation (51.2%) stages of change for condom use, and there were no significant differences at 6- and 12-months follow-up. In contrast, there were favorable changes in the intervention regiment between the baseline and follow-up assessments. Table 3 displays the differences in the stages of change for condom use between the intervention and control regiments over time. Notably, 36% of the participants in both regiments reported that they haven't even thought of using condoms with a casual partner at baseline. However, a positive intervention effect was observed in the intervention but not in the control regiment at the 6-months (40% vs. 0.9%) and 12-months (46.8% vs. 4.3%) follow-up assessments (p<0.05).

Discussion

These data show significant effects of the intervention in altering stage of change of condom use with casual partners from being largely pre-contemplation or contemplation stages to action or maintenance. The differences were not significantly different across the three time waves (baseline, 6-months, 12-months) for the control group but significant in moving the majority of the intervention group into action and maintenance stages at 6 and 12 months. The magnitude of the effect in those who reported casual partners is considerable, with over 90% of the intervention group reporting maintenance (condom use with casual partners) at twelve month follow-up. The comparison between the control and intervention groups suggests that this intervention had a substantial and statistically significant impact on condom use with casual partners over a period of less than a year.

These data are limited to those with casual partners (about half of the sample), and so the impact of the intervention on those with only a main partner cannot be estimated. Nevertheless, we must consider that HIV-related risks in uniformed service personnel who are posted to different regions of the country or overseas will largely relate to sex with casual partners, and on such deployments those who may have a main partner in their home base will likely be separated from that partner. If the level of change in stages of change in condom use is consistent in those who at present have a main partner, then this should also provide a significant increase in protection if

these reported changes are maintained. The extent to which these changes in intention will remain over time is unknown but it would be anticipated that there will be a need for follow-up interventions to maintain condom use with casual partners. Further, this study compared an intervention with no intervention, and it is unclear whether other forms of intervention may have different levels of impact on readiness to engage in HIV prevention activities. There is a clear intervention effect, but other interventions may be more or less effective compared with the situationally-based one, which was designed with non-western cultures in mind.

This intervention has important implications for HIV prevention interventions for uniformed services personnel in Nigeria. Fisher and Fisher (2000) argue that an understanding of the stage distribution of persons engaged in a particular behavior could enable interventionists to develop HIV programs that meet the needs of a particular population. They highlight that intervention programs that are matched to the stage of change of a particular population are more likely to promote positive changes in HIV risk behaviors. Most of the Nigerian uniformed services personnel recruited for this study were in the preparation stage of behavior change, suggesting that they were appropriate recruits for action oriented prevention interventions such as a situationally-based HIV prevention program (Fisher and Fisher, 2000).

These data are subject to several limitations. First, we followed a cohort which comprised a regiment, not individuals, and thus we will have lost people who were exposed to some of the interventions, and gained others who would have been exposed to none or few of the interventions. This would probably have biased toward the null hypothesis. Although we have no way of knowing the level of interaction between the two regiments, they were not stationed or deployed together during the time of the study. In a conurbation of over 14 million, we did not expect encounters between the personnel from each of the regiments which may have diffused the intervention. If this did occur, it would also have biased toward the null hypothesis.

These data confirm that a situationally-based intervention with uniformed service personnel in West Africa has a significant and powerful impact on reported readiness to engage in HIV-preventive activities with casual partners, and specifically, condom use. Further, despite the design limitations which were dictated by the operational requirements of active military units, the intervention was applied in a military setting without any major limitations. These data suggest that this type of intervention may have a major impact, at least in the short term, on STD and HIV rates in uniformed service personnel who operate in high HIV/STD prevalence areas. Further research on its longer-term outcomes and generalizability to security personnel in other non-western contexts is, however, required.

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	Control group (n = 987)		Intervention group		
			(n = 1222)		
Variables	Frequencies	%	Frequencies	%	
Sex					
Female	128	13.0	167	13.7	
Male	859	87.0	1055	86.3	
Age*					
18-29	613	62.1	604	49.5	
30-49	353	35.8	557	45.6	
50 and above	21	2.1	60	4.9	
Ethnic background*					
Hausa	296	30.0	266	21.8	
Ibo	205	20.8	258	21.1	
Ijaw	110	11.1	92	7.5	
Yoruba	215	21.8	282	23.1	
Ibibio	118	12.0	132	10.8	
Other	43	4.4	192	15.7	
Highest level of schooling completed*					
Elementary school	243	24.6	101	8.3	
Junior Secondary	349	35.4	278	22.8	
Senior Secondary	326	33.0	686	56.2	
College	69	7.0	156	12.8	
HIV status*					
HIV positive	13	1.3	11	0.9	
HIV negative	454	46.0	735	60.1	
Don't know	520	52.7	476	39.0	
I usually have sex with					
Females	854	86.6	1049	86.3	
Males	129	13.1	163	13.4	
Males and Females	3	0.3	3	0.2	
Do you have a main partner (husband.					
wife, girlfriend, boyfriend, etc.)?					
Yes	504	51.7	656	53.8	
No	470	48.3	563	46.2	
* Significant dif	ference	between	grout	os, p	

Table 1. Description of sample – control and intervention groups

	CONTROL			INTERVENTION			
	Pretest	6 months	12 months	Pretest	6 months	12 months	
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	
Haven't thought of	36.9 (191)	40.7 (159)	46.8 (207)	36.2 (226)	0.9 (5)	4.3 (20)	
using condom with							
casual partner							
Thinking about	51.2 (265)	49.9 (195)	36.0 (159)	53.5 (334)	2.2 (12)	0.4 (2)	
using condom with							
casual partner or							
making definite							
plans to use							
condoms with all							
casual partners							
Have already used	4.4 (23)	4.1 (16)	6.6 (29)	2.7 (17)	44.2 (249)	3.4 (16)	
condoms with							
some, but not all							
casual partners							
Already using	7.5 (39)	5.4 (21)	10.6 (47)	7.7 (48)	52.8 (297)	91.9 (432)	
condoms with all							
casual partners							

Table 2.	Which of these	best describes	your curren	t condom u	ise with	casual pa	artners in	the last 6
weeks? *								

*Represents only respondents who reported having a casual partner within the last 6 weeks

	Pretest**		6 months***		12 months****	
	Control	Intervention	Control	Intervention	Control	Intervention
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
Haven't thought of	36.9 (191)	36.2 (226)	40.7 (159)	0.9 (5)	46.8 (207)	4.3 (20)
using condom with						
casual partner						
Thinking about	51.2 (265)	53.5 (334)	49.9 (195)	2.2 (12)	36.0 (159)	0.4 (2)
using condom with						
casual partner or						
making definite						
plans to use						
condoms with all						
casual partners						
Have already used	4.4 (23)	2.7 (17)	4.1 (16)	44.2 (249)	6.6 (29)	3.4 (16)
condoms with some,						
but not all casual						
partners						
Already using	7.5 (39)	7.7 (48)	5.4 (21)	52.8 (297)	10.6 (47)	91.9 (432)
condoms with all						
casual partners						

*Represents only respondents who reported having a casual partner within the last 6 weeks.

** p=.44 *** p<0.001 **** p<0.001