

# The Development, Implementation, and Evaluation of a Peer Education Training Curriculum for HIV/AIDS Prevention in Post War Sierra Leone, West Africa: Toward a Capacity Building Tool

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The study involved the development, implementation, and evaluation of an HIV/AIDS Peer Education Program (HIV/AIDS PEP) piloted in Sierra Leone, West Africa. The sample of volunteer peer educators was from 4 tribes across Sierra Leone (n=34) with a mean age of 30.35 (SD= 8.70). After four weeks of intensive training, when comparing the peer educators HIV/AIDS Knowledge scores at pre-training (mean = 24.03, SD=3.69) versus post-training (mean = 26.25, SD=2.68) there was a statistically significant difference ( $t = -4.214$ ,  $df = 29$ ,  $p < .001$ ). Peer educators rated their HIV/AIDS knowledge and their acquisition of key skills at the end of the training, contrasting their perception of what they knew/their skills at pre-training versus post-training; the difference between their mean self-ratings at pre- (mean = 2.90, SD = .59) and post-training (mean = 5.60, SD = .25) was significant ( $t = -24.06$ ,  $df = 31$ ,  $p = .000$ ). For post-training ratings, comparisons were made between peer educators' self-rating and their buddies' ratings of them for skills covered within the curriculum. Other results included the songs and theatrical skits the peer educators created to educate others, containing culturally appropriate information that sought to foster abstaining from high-risk cultural practices. At the same time, the training process revealed the need to acknowledge how harm reduction might be a more realistic approach, given the manner in which not all community members were likely to readily adopt the recommendation to abstain from these practices. Overall, results suggest that the current curriculum shows promise for fostering HIV prevention, while further research is recommended.

Keywords: HIV/AIDS prevention; knowledge; peer education; capacity building, Sierra Leone, Africa

**O**ver the past decades, HIV/AIDS has emerged as a major health, human, and development crisis, especially in Africa, the epicenter of the global AIDS epidemic. The epidemiological fact sheet on HIV/AIDS and sexually transmitted disease (STD) in Sierra Leone in 2002 estimated the number of children and adults living with HIV/AIDS to be: 150,000 adults ages 15-49; 90,000 women ages 15-49; and 16,000 children ages 0-15 (UNAIDS, UNICEF and WHO, 2002). The intersection of ethnopolitical war and conflict and the transmission of HIV / AIDS is a reality in Sierra Leone that has

left a legacy, creating the contemporary HIV/AIDS prevention challenge. This problem is of great importance, as the threat of HIV/AIDS continues to grow in this country, despite new-found stability; and, there is a need to train peer educators who can disseminate HIV/AIDS prevention.

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The present research study addresses the challenge of preventing HIV/AIDS transmission in the African country of Sierra Leone where infection mainly occurs via heterosexual practices, as in most African countries, and the social context includes the country of Sierra Leone stabilizing in a new period post-war and rebel insurrection. The stabilization process has included the presence of representatives from the Economic Community of West African States Ceasefire Monitoring Group (ECOMOG).

Many reports and instances of HIV infection rates are among ECOMOG contingents. Of those tested for HIV/AIDS, about 800 ECOMOG soldiers, or some 87%, were found to be HIV positive. Among commercial sex workers, a 1997 study revealed an estimated 70.6% HIV infection rate. In the Sierra Leone capital city of Freetown, having a high concentration of peacekeepers, there was an HIV prevalence rate of 6%. In Bo, the second largest city in the country with less of a concentration of peacekeepers, there was a lower prevalence of HIV. The inadequate counseling and testing facilities, and a very limited availability of trained personnel in the field, sabotaged every effort to slow if not prevent HIV transmission in the country of Sierra Leone. The voluntary counseling and testing for peacekeepers has been characterized as ineffective due to a lack of trained and qualified manpower in the area of HIV/AIDS prevention and intervention. The promotion of the correct use of condoms by troops was characterized as not being a central focus of prevention programs. The distribution of condoms depended upon the cooperation of the national troop commanders, and some contingent leaders failed to order the distribution and use of condoms (Banzerger, 2002, pp.1-7).

In war-torn Sierra Leone, HIV/AIDS awareness in the rural areas, and, especially, in the war affected regions, has been described as very low. UNAIDS/ICT/WCA (2002) reports how the "Multiple Indicator Cluster Survey" (MICS-2), a national preventative survey of households, revealed a low perception of risks and low levels of knowledge with regards to HIV/AIDS among

youths in the North--the stronghold of Revolutionary United Front (RUF) rebels. At a national level, more than two-thirds of women in the sexually reproductive age group were unable to identify effective HIV prevention methods. This figure jumped to 92% among the same age group in the North. In addition, 54% of the same age group reported having never heard of AIDS. Less than 10% of women in a reproductive age group knew where to obtain an HIV test; this figure ranged from 2% in the North to 24% in the West. Only one-third (34%) of women in the sexually reproductive age group believed that HIV can be transmitted from mother to child, and less than 1% of these women reported condom use as a preventive measure (Bazergan, 2002).

Cultural practices must also be considered. HIV/AIDS research studies have emphasized that the main methods of HIV transmission in most parts of the world involve unprotected sexual intimacy with an infected individual, or the sharing of infected injection drug use equipment (DiClemente & Peterson, 1994).

However, a consideration of cultural practices suggests how the kind of HIV infected equipment shared that is of interest may go beyond injection equipment/needles. Some of the pertinent cultural practices may be little understood by outside Western observers. For example, in the case of genital mutilation, consider how a potentially shared knife may infect more than one girl/woman undergoing this cultural rite. Or, in the case of other rites where cutting or scarring may occur on various parts of the body, the same concern over the instrument used for cutting being shared repeatedly arises. The full range of potential routes of transmission must be a part of any culturally appropriate HIV/AIDS prevention in Africa.

Peer education has been recommended as the main tool to reduce the spread of HIV/AIDS in places such as Africa. These programs place emphasis upon condom use, and the delivery of appropriate sex education and other intervention messages. Peer education programs have yielded promising results in places such as the United States

(Richie, & Getty, 1994), as well as in Columbia (Perez & Dabis, 2003), Uganda (Henderson, 1996), Tanzania (Laukamm-Josten et al., 2002) and Zambia (Agha, 2002)—to name a few.

Moreover, peer education is viewed as cost-effective (Dittmer & Handwerk, 1991). In the face of dwindling financial resources, the training and use of peer educators provides professionals with an opportunity to use their creativity, knowledge and skills in order to do more with less. Peer health educators can provide important necessary services when there is a shortage of professional staff and also augment services provided by existing staff. In addition, the special quality of successful peer health education programs is the provision of adequate and appropriate training. For the most part, the training should be fun, action-oriented, involve dialogue, role playing, use stimulating games, short films, and include visits from therapists and other professionals from the community. The use of videotapes and group critiques of role-playing experiences by the peer counselors have been found to be very effective (Dittmar & Handwerk, 1991).

Thus, there is a strong rationale for developing, implementing, and evaluating a model of culturally appropriate HIV/AIDS prevention peer education training in a country such as Sierra Leone, West Africa. Given the problem of addressing the HIV/AIDS infection and transmission risk in post-war Sierra Leone the present study was conducted, being guided by a number of research questions, as follows:

1) How do peer-educators' pre-training versus post-training HIV/AIDS knowledge scores and self-assessments differ for HIV/AIDS knowledge?

2) How do peer educators evaluate their ability (themselves, and that of a peer/buddy) to demonstrate: 1) a self-calming breathing exercise; 2) seeking social support from optimistic and positive peers; 3) positive attitudes; 4) moving peers across stages of change toward taking action in engaging in prevention behaviors; and, 5) coping in high-risk situations for relapse to risky behaviors?

3) How do the peer educators evaluate the overall HIV/AIDS PEP and the various curriculum training program components?

## Methods

### *Participants*

The study participants included a small convenience sample of (n=34) volunteers (adolescents and adults) living in Sierra Leone who responded to a recruitment message delivered via radio. Applicants showed up at the advertised location and were screened on July 29<sup>th</sup>, 2005 from among some 200 persons who showed up to apply. The final 34 peer educators chosen had all successfully filled out an application, had at least a High School education, knew how to read and speak at least a "little bit" of English, could understand at least some spoken English, and were skilled in the Creole in which the majority of the training was conducted; they were also from five tribes common to Sierra Leone, speaking their own tribal language. Hence, given these sample characteristics, the administration of surveys and the overall training was conducted in as many as five languages at any given time. Of note, translation of all informed consent information, questionnaire/survey content, and curriculum content, therefore, occurred in a group setting, in up to five languages, suggesting the patience required and resultant pace of the program training; this procedure, did, however, seek to facilitate understanding for all program participants, while respecting and responding to their linguistic diversity.

More specifically, the sample spanned the ages of 18 to 60 with a mean age of 30.35 (SD= 8.70), while the majority were male (n=20, 58.8%; female n=14, 41.2%). The sample of peer educators included mostly the unemployed (n=18, 52.9%) and teachers on their long break from teaching (n=9, 26.5%), while there were also two nurses (5.9%) on loan from the hospital where the peer education training took place, and one health educator (2.9%).

### ***Instruments***

*The HIV/AIDS Knowledge Questionnaire.* This is a 30-item tool that permits a high score of 30, was the survey administered both pre-training and post-training four weeks later—in order to assess HIV/AIDS knowledge. The tool was designed by Barbara C. Wallace, Director of the Research Group on Disparities in Health, Teachers College, Columbia University; the tool was created for this study and intended to be the measure of choice used for all studies using the curriculum deployed in the present study (i.e. Wallace, 2005). This study found the HIV/AIDS Knowledge Questionnaire to have a Cronbach's Alpha of .678, suggesting acceptable internal consistency for a new measure.

*The Rate Your Self as Post-Training and Rate Your Buddy at Post-Training surveys.* Respectively, these two tools allowed each peer educator and buddy (paired at the beginning of the training) to each rate themselves and each other at the completion of the four weeks of training, permitting a comparison of both ratings. Each survey used a 6-point Likert rating scale—ranging from excellent, very good, good, fair, poor, to very poor. The Rate Your Self at Post-Training and Rate Your Buddy at Post-Training scales each permitted a rating of how each peer educator saw themselves and their buddy, respectively, with regard to mastery of the following skills: 1) demonstrating engagement in a self-calming breathing exercise; 2) demonstrating the seeking of social support from optimistic and positive peers; 3) demonstrating moving peers across stages of change toward taking action in engaging in prevention behaviors; and, 2) demonstrating coping in high-risk situations for relapse to risky behaviors.

*The Rate the Program at Post-Training survey.* Administered at the end of the four weeks of training, this survey was completed by each peer educator so they could rate the different program components. The Rate the Program scale permits a 6-point Likert rating—ranging from excellent, very good, good, fair, poor, to very poor—for each program component. Finally, they also

collectively rated the overall program on a survey using a 6-point Likert scale, as well as via a final focus group discussion.

### ***Procedure***

Under the direct leadership of 4 Facilitators/Trainers, and a Program Director (author, Richard Konuwa), the peer educators participated in four weeks of intensive training, five days a week, from 9:30 am to 3:30 pm, including a break for breakfast (9:30-9:50 am) and a break for lunch (12:00-12:40 pm). Incentives included paying in Sierra Leone Currency to the Trainers the US equivalent of \$80, and each peer educator the US equivalent of \$49 on the last day of the HIV/AIDS peer education training program. Exclusion criteria included those who did not anticipate being able to attend all of the training sessions. Of note, some peer educators were infected or affected by HIV/AIDS, but none of the peer educators were not required or encouraged to disclose their HIV/AIDS status.

*Pre-training evaluation* of HIV/AIDS Knowledge occurred on the first day of training. The *first week of training* included learning and teaching a self-calming exercise, as well as learning and teaching seeking out support from optimistic and positive peers and having positive attitudes about people living with HIV/AIDS.

The *second week of training* focused on teaching HIV/AIDS knowledge, addressing transmission, as well as attitudes and behaviors. This culminated in six songs created to emphasize the main routes of transmission and foster memorization of other key knowledge.

The *third week of training* focused on teaching about stages of change (stages of safety) and motivational interviewing (steps for empowering our peers to move toward being safe). This culminated in the creation of two songs to foster memorization of this information.

The *fourth week of training* involved teaching relapse prevention (empowering our peers to pass unexpected tests and avoid a

return to being unsafe); this week also involved creating scenes for a play.

*Post-training evaluation* occurred on the final day of the fourth week of training. During the fourth week of training, the peer educators also broke up into three groups and each prepared a play they performed at their graduation ceremony on the final day of the program (last day of week five). With the formal conclusion of the peer education training program at the end of week four, the decision was made to have the peer educators have a supervised practicum experience in a fifth week, before their graduation ceremony.

Hence, during *the fifth week of practicum training* they went out into the field to engage in community outreach as peer educators, returning to discuss their experiences. They also rehearsed scenes for their graduation play, scheduled for the final day of the program. They were paid a stipend on the last day of the program (approximately \$49 in US equivalent) and received a certificate of completion.

### **Materials**

*HIV/AIDS Peer education training manual.* The training manual that codified the peer education training program curriculum was developed by Wallace (2005), being an integration of African Healing Wisdom (Ayebofo, 2005), as well as three evidence-based approaches to behavior change; stages of change (Prochaska & DiClemente, 1983); motivational interviewing (Miller & Rollnick, 2002), and relapse prevention (Marlatt & Gordon, 1985). Given the goal of creating a curriculum for locals in Africa where literacy and linguistic challenges might arise, and levels of education might vary, an emphasis was placed on using songs and theatrical skits to facilitate memorization of key curriculum content, and learning by those community members they sought to teach, respectively. More specifically, the curriculum included five hand gestures to represent five stages of safety to correspond to the five stages of change; the curriculum instructed peers to create original songs to facilitate memorization of these gestures and the curriculum

content they embodied. There were also six body gestures offered to correspond to key elements of the technique of motivational interviewing, being designed to facilitate memorization of how peers were to do the following: first, remember the rules, avoiding telling people what to do, or speaking harshly, while always remaining respectful and calm, and providing reinforcement for any (change) talk they hear about people already taking steps to change, wanting to change, or planning to change; asking about concerns or worries (i.e. HIV transmission risk); engage in a decisional balance exercise, exploring pros and cons of change options as well as providing a summary of these in a balanced manner (i.e. on the one hand I hear you saying, while on the other hand I hear you saying); list a menu of options for ways to change, including not changing; ask about next steps the person is willing to take; and, emphasize how the choice for next steps is totally up to the individual.

Here, too, peers in training were instructed to create original songs to facilitate memorization of these six motivational interviewing techniques. They were also instructed to identify all the high risk situations common to people just like themselves in their culture, while creating theatrical skits that demonstrate ways to cope successfully to avoid HIV transmission—following the principles of relapse prevention. A final graduation play was envisioned as a day for their sharing with their community all the songs and theatrical skits they created across their training, while educating community members to prevent HIV transmission.

In addition, the curriculum was adapted in light of focus group findings with immigrants from Sierra Leone living in the United States, as well as interviews with medical doctors who reacted to the focus group findings. The themes that arose from the focus groups led to specific content in the curriculum, including a focus on the following: addressing preventing HIV transmission via the use of knives in cultural rituals that occur within the secret societies in Sierra Leone; address how there are

charlatans who use one needle to inject many people and the strong cultural belief—especially out in the village—that receiving an injection is the ideal response to literally any illness or health complaints; include approaches that acknowledge how there is a lack of bleach to clean needles in Sierra Leone (i.e., harm reduction may be necessary); encourage peer educators to return to their distant villages to do outreach and education; and, encourage peers to create convincing stories, demonstrations, and real scenarios in local languages as part of their teaching tools.

Two medical doctors were interviewed to respond to the findings from the focus groups. In particular, the goal was to assess their views with regard to the culture-specific high risk situations for HIV transmission that emerged. Two main themes arose from these interviews: 1) deeply entrenched cultural beliefs are hard to change, and nothing will be as safe as totally abandoning certain cultural practices; and, 2) only one time use of disposable needles and scalpels will be sufficiently safe, given cultural practices. These recommendations were integrated into the training. They were viewed as consistent with an abstinence only approach to high risk cultural practices.

Hence, the final curriculum (Wallace, 2005) reflected all the recommendations from the focus groups and interviews. The result was the central tool used in the training in Sierra Leone.

*Condoms.* Male and female condoms were provided to teach peer educators how to use them appropriately to prevent contracting HIV from infected sexual partners—including how to teach others proper condom use. Emphasis was also placed on why condoms fail to protect if not used properly. Graduate peer educators received a supply of male and female condoms for use in their community outreach work and peer education activities in the community.

*Male and Female Sexual Organs.* Rubber models of male and female sexual parts were utilized during the training in order to demonstrate the appropriate use of condoms and how HIV is easily transmitted or

prevented. The rubber models of sexual organs were also used to explain the transmission of other sexually transmitted diseases (STDs).

### *Data Analysis Plan*

Peer-educators' HIV/AIDS knowledge was analyzed using descriptive statistics. T-tests for paired samples was used to compare their pre- and post- test answers (n=34). In addition, peer-educators' evaluation of their own and a buddy's ability to demonstrate the five key skills emphasized by the training program (i.e. corresponding to the components of the curriculum) was measured by using a 6-point Likert scale (excellent, very good, good, fair, poor, very poor) and analyzed using descriptive statistics. Peer-educators' evaluations of the overall HIV/AIDS peer via the survey where they rated the program components were analyzed using descriptive statistics.

### **Results**

Findings are reported for the sample of peer educators trained in Sierra Leone, West Africa (n=34) with a mean age of 30.35 (SD= 8.70) and the majority being male (n=20, 58.8%; female n=14, 41.2%). Other demographic characteristics are summarized in Table 1.

Peer educators showed an overall significant positive 2.00 point mean increase in HIV/AIDS Knowledge scores from pre-training (Mean = 24.03, SD = 3.46 –out of a possible high score of 30) to post-training (Mean = 26.25, SD = 2.58); table 2 shows the change from pre- to post-training. Table 3 displays the manner in which the difference in pre- and post-training scores attained significance ( $t = -4.214$ ,  $df = 29$ ,  $p < .001$ ). Of note, there were no differences between males and females for HIV/AIDS knowledge. The range in change scores (-4.00 to 8.00) shown previously (in Table 2) was analyzed further by examining a frequency count in the change scores. A full 70% (n=21) of the sample showed some improvement in HIV/AIDS Knowledge from pre-training to

**Table 1. Sierra Leone Peer Educators: Sample Demographics (N=34)**

AGE	Mean	SD	Range	
	30.35	8.70	18-60	
GENDER	Male	Female		
	n (%)	n (%)		
	20 (58.8%)	14 (41.2%)		
ORIGINAL TRIBE IN SIERRA LEONE/FIRST LANGUAGE				
Mende	Temne	Kono	Krio	
n (%)	n (%)	n (%)	n (%)	
22 (64.7%)	5 (14.7 %)	2 (5.9%)	5 (14.7%)	
REGION IN SIERRA LEONE WHERE THEY NOW LIVE				
Kenema		Bo		
n (%)		n (%)		
31 (91.2%)		3 (8.8%)		
EMPLOYMENT/PROFESSIONAL STATUS				
No Job	Teacher*	Nurse**	Student	Health Educator
n (%)	n (%)	n (%)	n (%)	n (%)
18 (52.9%)	9 (26.5%)	4 (11.8%)	2 (5.9%)	1 (2.9%)

*Note: \* The 9 teachers were on their long summer breaks.*

*\*\* The 2 nurses were on loan to the program from the Kenema Government Hospital*

**Table 2. HIV/AIDS Knowledge Scores: Pre- to Post Training Change in Scores (N=30)**

	Correct Pre-Training (N=31, 3 Missing)	Correct Post-Training (N= 32, 2 Missing)	Change Pre to Post (*N=30, 4 Missing)
Mean	24.03	26.25	2.00
Median	24.00	27.00	2.00
SD	3.46	2.68	2.60
Range	18.00-30.00	20.00-30.00	-4.00-8.00

*Note: \* 4 pre- and post-surveys could not be matched, being eliminated*

**Table 3. Comparison of Pre- Versus Post- Training HIV/AIDS Knowledge Scores (N=30\*)**

		Paired Samples Test	df	Sig (2-tailed)	t
		Mean (SD)			
HIV/AIDS KNOWLEDGE SCORE					
Pre-Training (# Items Correct)	24.03 (3.46)		29	.000*	- 4.21
Post-Training (# Items Correct)	26.25 (2.68)				

*Note: 4 questions could not be matched from pre- to post-training; n=30 \* p < .001*

post-training, with their change scores ranging from a low to 1.00 ( $n=4$ , 13.3%) to as much as 3.00 ( $n=8$ , 26.7%), and a high change score of as much as 8.00 ( $n=8.00$ , 3.3%); again, 2.00 was the mean change score ( $SD=2.60$ ). Only 4 of the peer educators' change scores actually were *worse* from pre- to post-training on the HIV/AIDS Knowledge Questionnaire. Another 5 peer educators performed *the same* from pre- to post-, having change scores of .00 ( $n=5$ , 16.7%).

### ***Results of Self-Ratings of HIV/AIDS Knowledge Acquisition***

At post-training, peer educators also self-rated their HIV/AIDS knowledge, as well as their acquisition of key skills taught in the HIV/AIDS peer education training curriculum (i.e., ability to demonstrate a self-calming breathing exercise, seeking social support from optimistic and positive peers, moving peers across stages of change toward taking action in engaging in prevention behaviors, and coping in high-risk situations for relapse to risky behaviors). They reflected upon what they knew before the training and contrasted that with what they now knew, post-training—whether their HIV/AIDS knowledge or skills. Their mean self-rating before the training was 2.90 ( $SD = .59$ ) versus the mean self-rating now/post-training) of 5.60 ( $SD = .25$ ); moreover, the difference between these means was significant ( $t = -24.06$ ,  $df = 31$ ,  $p = .000$ ).

### ***Results of Buddy Ratings of HIV/AIDS Knowledge Acquisition***

Peer educators not only rated themselves, but also their buddy. Comparisons were made between each peer educator's self-rating and how their buddy rated them; peer educators tended to rate themselves significantly higher (in three of seven curriculum domains) than did their buddies. Moreover, the difference between the mean for all the self rating scores post-training (mean = 5.62,  $SD = .25$ ) versus the mean for all the buddy rating scores post-training (mean = 5.34,  $SD = .42$ ) attained

significance ( $t = 3.17$ ,  $df = 28$ ,  $p = .004$ ). However, the lack of difference (or agreement) in rating scores between peers rating themselves and the rating scores of their buddies in four of seven domains could also be seen as giving more validity to the peer educators' self ratings.

### ***Results of Overall Training Program Evaluation***

The peer educators also rated the overall HIV/AIDS PEP, curriculum, and training manual, rating the majority of program components very highly (mean = 5.75,  $SD = .25$ ). A focus group evaluation of the program was consistent with this survey rating. The peer educators recommended modifying the HIV/AIDS PEP so it occurred across a longer period of time, and for fewer hours per day, while also wanting to receive a higher pay in stipend at the end of the program.

### ***Other Results***

Other results included creative products that were another outcome of the HIV/AIDS peer education training. These included songs and skits/plays that served to educate community members about how to prevent HIV transmission. Of note, these were culturally appropriate products, as they included a play that covered how traditional marks are placed on children to identify them as members of a village, being done with a razor or knife—including urging change in cultural practices so they reduce the risk of HIV transmission.

### ***Discussion***

The present study found that exposure to the HIV/AIDS peer education training program resulted in an approximately 2 point increase in HIV/AIDS knowledge, after exposure to 4 weeks of training. The work of Evans, Hokanson, Augsburg, Sayrem Stotts, and Schmitz (2005) helps to place these findings in context.

Evans et al (2005) examined the knowledge acquisition and the retention of both HIV and Hepatitis C (HCV) risk information in a treatment-seeking substance abusing population. It was hypothesized that knowledge levels could increase for both HIV and HCV risk factors following a structured counseling session and that the knowledge gained would be retained at a second counseling session ten weeks later after the initial intervention. HIV/HCV knowledge assessment consisted of 29 and 13 items respectively. The questionnaire's format was True and False and the third option of I Don't Know—just as in the present study. The correct answer was coded 1, while the incorrect answer or the one marked I Don't Know was coded 0—again, just as in this study. They, too, used paired t test analysis, which indicated a significant increase in scores from time 1 to time 2 ( $p < 0.001$ ). The scores increased significantly in both the HIV and HCV sections of the knowledge assessment from an average of 20.4 to 23.0, and from 6.4 to 8.6, respectively ( $p < .001$ ). Evans et al's (2005) 2.6 point increase in HIV knowledge from pre- to post-test is comparable to the 2.0 increase in HIV knowledge obtained in the present study, achieving the same significance level via paired t-test analysis ( $p, .001$ )—even as there were many differences between the two studies. These differences range from the time period from pre- to post-testing (10 weeks versus 4 weeks) to the length of time spent transmitting new knowledge (1 counseling session versus a little over 1 weeks of classroom time). Thus, it may be that the Trainers in Sierra Leone did a relatively good job overcoming the language and comprehension barriers involved with members of various tribes present who sometimes required a translation into several languages to ensure understanding.

The study findings suggest that the HIV/AIDS peer education training curriculum, as codified in the manual (Wallace, 2005) and taught by the Trainers and the Director in Sierra Leone, significantly increased HIV/AIDS knowledge and fostered the acquisition of key abilities for preventing

HIV transmission. This suggests that health educators have a new tool they can adapt for use in their work—including, potentially on a global scale, since aspects tailored to be culturally appropriate for Africans in Sierra Leone may be appropriate for people of African descent living in various places around the globe. Or, the curriculum maybe readily adapted, as needed.

This is consistent with the work of Miller and Rollnick (2002) who describe the many ways a tool they created (ie, motivational interviewing) has been adapted by many others in a variety of settings around the world, even producing a body of evidence that supports the claim that it is now an evidence-based intervention. The HIV/AIDS peer education training curriculum may hold similar promise, as suggested by the findings in this first evaluation in Sierra Leone.

### *Study Limitations*

There were many limitations in the study, starting with the small sample size, the use of self-report survey data to obtain information, and the need to use an oral group administration of the surveys using as many as five languages. Responses may reflect lack of adequate understanding of some items, nonetheless. Also, some may critique the knowledge survey as having some answers that were too easy. The post-training surveys seeking peer educator's ratings may also be critiqued as being leading, as one may tend to always see one's ability as lower before a training and higher after a training. Thus, these limitations must be kept in mind. Future research could overcome the limitations of small sample size. There could also be random assignment to the HIV/AIDS PEP intervention and to a control or wait list condition, as recommendations for future larger, grant-funded studies.

### *Recommendations*

A next recommended step would be to have other evaluations of the HIV/AIDS peer education training curriculum in other parts of Africa, the Caribbean, and the United

States with adolescents and/or adults who also create their own songs, skits and plays. The key question in all evaluations would be the results for changes in knowledge from pre- to post- training, and results for ratings of abilities in key areas (e.g., moving peers across stages of safety, etc...).

Comparisons with the findings in Sierra Leone with those in other locations are recommended. It is possible that the language and translation barriers common to Sierra Leone might support adjusting the length of the training. Changes in the length and structure of training might be important for training adolescents and/or adults who may not be able to stop their lives for 4 weeks; the high unemployment rates in Africa make this feasible, but impractical in the United States, except in summer programs, perhaps. One would be advised to develop a Sunday afternoon after-church workshop model that could compress the training period, perhaps by also assigning homework during the week in between the Sunday trainings. Results in the United States for knowledge and key abilities could be compared to the Sierra Leone and other samples.

Nonetheless, it appears as though the HIV/AIDS peer education training program significantly increased knowledge and resulted in significant change such that peer educators and their buddies agreed that a very good level of ability had been acquired with regard demonstrating seeking social support, positive attitudes, moving peers across stages of safety, and teaching peers to avoid slips/relapses. If the peer education manual is modified and improved to incorporate harm reduction, for example, as well as abstinence curriculum content, then the current curriculum rooted in this manual may be end up being an effective tool for the prevention of HIV transmission in Africa, given the results of this first pilot in Sierra Leone.

### ***Curriculum Limitations***

Hence, one may conclude that there were also, however, limitations in the training curriculum (Wallace, 2005)—which ended up taking a largely abstinence only approach to

high risk cultural practices. The earliest version of the training manual that the five focus group members from Sierra Leone living in the United States critiqued had a figure with instructions for cleaning needles with bleach, but this was taken out when focus group findings indicated that bleach was not readily available. Moreover, the medical doctors interviewed felt that boiling of knives used in cultural rituals would not kill dangerous bacterial spores. Hence, it may be that a serious deficit exists in the training manual involving lack of appreciation of how both abstinence approaches and harm reduction approaches might have been integrated. Indeed, a need for recognition of a harm reduction approach arose during the training in Sierra Leone.

### ***The Need to Adapt to Curriculum As Indicated: Facing Reality***

During the training, a great deal of time was spent discussing whether all of the people in the villages and across Sierra Leone would accept the recommendation to, in effect, embrace total abstinence when it comes to cultural practices in the secret societies, or when it comes to their responses to charlatans who arrive in their village and want to inject them with needles for their illnesses. We decided to follow Marlatt (1998) and accept the reality that some people would not totally abandon or stop all risky cultural behaviors, evoking a harm reduction approach.

Peer educators felt that some community members would not stop cultural practices involving knives and needles. However, if they did engage in these behaviors they could take precautions involving boiling knives and needles so as to kill the HIV virus, while risking exposure to harmful elements—such as bacterial spores, for example. This was a difficult compromise and violated to some extent the best wisdom codified in the training manual and offered by the medical professionals interviewed. But, in the field, as the Project Director, Richard Konuwa was forced to take a stand with Marlatt (1998) and support the peer educators

in valuing a role for information consistent with harm reduction (i.e. insisting and seeing how an instrument that penetrates, cuts, or tears the skin is first boiled before it is used on one's body).

There was a rationale for this decision to include harm reduction. In Sierra Leone, many people buy syringes to be injected with, even in the hospital setting. This is because there is a scarcity of syringes in the country. Thus, some of the charlatans and quacks posing as doctors do not have money to buy enough of these syringes to use in the villages; and, they have no sterilization equipment. There may also be some very real life and death situations involving legitimate medical professionals wherein a sick villager desperately needs treatment. Thus, for these kinds of reasons, also, it was recommended that the sick person ask the doctors to boil the used syringe if they do not have a new one to use, rather than re-use a syringe potentially infected with HIV. The boiling of a syringe was seen as a way of sterilizing it in situations where there was not a new one available for use—again acknowledging the reality of life in an African village, and necessitating the addition of a harm reduction perspective. Hence, the plays and songs at graduation first conveyed the ideal (akin to abstinence) instructions, and then added recognition of what might be real (akin to harm reduction), such as participation in ongoing high-risk cultural/ritual behaviors---necessitating teaching about boiling.

Even though harm reduction of this kind was embraced during the training of peer educators, their graduation play sought to teach the ideal: abstinence from high risk practices. The skit showed how quack doctors or charlatans go from village to village injecting many sick people with the same syringe needle just to make money. The play and a corresponding song suggested “let us work together to stop these killers.” The song created on this issue was called “Do not allow them to inject you with a used syringe/needle.” The song warned further “to be aware of quack doctors and say no to their medical practices.”

Future adaptations of the HIV/AIDS peer education curriculum (Wallace, 2005) should, similarly, recognize the legitimacy of responding to real-world conditions within any local culture. Such adaptations should enhance the utility of the curriculum with various cultural groups. Indeed, the curriculum has been created with the intent to empower local communities to tailor the curriculum to the cultural realities that they face, so they may take an active role in determining their own and their community's health. As such, the curriculum holds promise for playing a role in the prevention of HIV/AIDS in communities around the globe. The result is a potentially viable tool for building local and global capacity for HIV/AIDS prevention via peer education training programs.

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