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Measurement of HIV Prevention Indicators: A Comparison of the PLACE Method and a Household Survey in Zambia

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Abstract

Reaching populations at greatest risk for acquiring HIV is essential for efforts to combat the epidemic. This paper presents, the Priorities for Local AIDS Control Efforts (PLACE) method which focuses on understanding the venues where people are meeting new sexual partners and behaviors which put people at risk. A comparison of data from two PLACE studies in Zambia with a national household survey, the Zambia Sexual Behavior Survey (ZSBS) 2005, indicated that the PLACE population was at greater risk of acquiring HIV. Respondents in the two PLACE studies were significantly more likely to report 1+ new partners in the past 4 weeks, 2+ partners in the past 12 months, 1+ new partner in the past 12 months and transactional sex. Data from the PLACE method is important for targeting interventions for those most likely to acquire and transmit HIV.

Keywords

HIV prevention; sexual behavior; measurement; Zambia

INTRODUCTION

The body of knowledge surrounding the HIV/AIDS epidemic has expanded dramatically in the last decade, as has the programmatic response to the HIV/AIDS epidemic. Both have led to an intense focus on monitoring and evaluation of HIV/AIDS prevention, care and treatment programs, as well as a proliferation of indicators, and innovations in the data collection approaches that underlie indicator measurement. This study examines results produced using two different approaches to measuring trends in sexual behavior and related HIV prevention program indicators – a national household survey, the Zambia Sexual Behavior Survey (ZSBS) 2005, and a venue-based survey called the Priorities for Local AIDS Control Efforts (PLACE) method.

In countries where the HIV/AIDS epidemic is generalized, survey data on national trends in HIV/AIDS prevention indicators can be obtained from household surveys. In many countries, household surveys are the main source of information on HIV/AIDS risk factors and program exposure. Survey-based indicators can play an important role in tracking overall trends in behavior and documenting overall performance of a national HIV/AIDS program.

The PLACE method, a relatively recent innovation in data collection techniques, was developed in part as a response to gaps in the information provided by other survey approaches with respect to data needed for program planning and monitoring at the district or local level. For example, nationally representative surveys are not cost-efficient for obtaining detailed information on small but important subpopulations, or for tracking local trends in geographic areas where incidence of HIV infection is known or believed to be higher than average. PLACE obtains many of the same sexual behavior and HIV prevention program indicators as a household survey, but targets a different population and has a different goal. The purpose of the PLACE method is to provide information useful for targeting interventions at local venues known to the community as places where new sexual partnerships are formed – in other words, to reach those in a community whose behavior is likely to put them at high risk of HIV infection and transmission.

A considerable body of knowledge and experience has accumulated on the strengths, limitations, and the programmatic utility of obtaining data on HIV/AIDS prevention indicators from nationally representative household surveys. Face to face interviews might not be the best means to obtain data on sexual behavior, and there is an acknowledgment that new methods need to be researched (Cleland et al. 2004). Self-reports of sexual behavior are also acknowledged to have lower validity and reliability than less sensitive topics (i.e. Huygens et al. 1996; Fenton et al. 2001; Cleland et al. 2004).

To date, at least 42 applications of the PLACE method have been documented and knowledge about its potential utility continues to build. However, only a few comparisons of the PLACE study to household surveys have been made. In Jamaica PLACE respondents interviewed in Montego Bay and Kingston in 2002 and 2003 were compared to respondents from the national Knowledge Attitudes Practice and Behavior Study in 2004. PLACE respondents were found to be more likely to have 2 or more partners in the past year and one or more new partner in the past year (Weir et al. 2008). In a comparison of methods in Haiti, PLACE respondents interviewed in 2006/2007 had more risky sexual behavior than the population sampled by the DHS in 2005/2006 (Speizer et al. 2007). Information for PLACE studies in East London Township South Africa in 2000 and 2003 were compared to a nationally representative household survey carried out by Human Sciences Research Council in 2002. The PLACE respondents were more likely to have two or more partners in the past 12 months, to have a new partner in the past 12 months and also to have a new partner in the past 4 weeks (Weir et al. 2004).

This analysis compared data from three studies carried out in Zambia in 2005, where it was possible to coordinate instrument design, sampling, and timing of fieldwork for a biannual household survey, the ZSBS, with two PLACE studies. The studies were designed simultaneously and contained many of the same questions. Taking advantage of this opportunity, it was possible to compare district-level data from the ZSBS with district-level data from the PLACE studies. In the two districts compared, all household and PLACE method interviews were completed during the period of May 2005 to October 2005. So this study was unique in comparing the PLACE respondents to respondents in the very same districts during a specified time period. Institution review boards (IRBs) at both the

University of North Carolina and the University of Zambia approved the ZSBS and PLACE studies.

This research looked at whether it was programmatically useful to have data from both sources. The key issue was whether the PLACE population does indeed capture a higher risk population than that captured in household surveys such as the ZSBS. Another key issue was whether the PLACE and household populations overlap at all or whether the PLACE method essentially captures a population likely to be missed in a household survey. Insight into topics such as these can assist policymakers and program managers in planning for comprehensive data collection strategies in the context of a country's overall HIV-related monitoring and evaluation strategy.

METHODS

Study Setting

The towns of Mongu and Kapiri Mposhi were selected for the comparison of the PLACE studies and ZSBS 2005. These towns were chosen so that a better understanding of their local HIV epidemics could be obtained. In both Mongu and Kapiri Mposhi, data from antenatal clinics and official projections suggested that the level of HIV prevalence was high. In 2004, HIV prevalence among pregnant women attending antenatal care was 28.2% in Mongu and 20.2% in Kapiri Mposhi. Official projections estimated an overall prevalence in Mongu District around 21.0% and in Kapiri Mposhi District 17.4% for 2006 (CSO, 2005).

Urban Mongu, a provincial capital, serves as a crossroads for commerce and trade. Increasingly large numbers of people from other parts of Zambia and neighboring countries, as well as international tourists, pass through Mongu. The tradesmen and visitors meet and socialize with each other and with the local population, and this social mixing can create opportunities for HIV transmission. The PLACE study in Mongu was conducted in June and July 2005 (Frontiers Development and Research Group & MEASURE Evaluation, 2006b) and the ZSBS in February and March 2005 (CSO and MEASURE Evaluation, 2006).

Kapiri Mposhi is a major transportation hub, located along the Great North Road in Zambia. The TAZARA rail line that links Zambia and Tanzania terminates in Kapiri Mposhi. At a junction just north of the town, the Lusaka-Ndola road to the Copperbelt merges with the Great North Road leading to neighboring Tanzania. A large number of people from all parts of Zambia and from many other countries pass through the town of Kapiri Mposhi over the course of a year, and many spend at least one night in or near the town. The PLACE study in Kapiri Mposhi was conducted in September and October 2005 (Frontiers Development and Research Group & MEASURE Evaluation, 2006a) and the ZSBS in February and March 2005.

Survey clusters for the ZSBS included clusters that were in Mongu District and Kapiri Mposhi District. These districts were also oversampled for the purpose of this comparison, although the oversampled clusters were not included in the national ZSBS analysis.

The PLACE Method

The PLACE method “identifies, maps, and characterizes public venues where people meet new sexual partners, and estimates the extent of new partnership formation, concurrent partnerships, sexual mixing, and condom use among the population socializing at these venues” (Weir et al. 2002).

The PLACE method consists of three phases of fieldwork. In the first phase, interviewers ask 300 to 400 community informants in each town to name local public venues where people meet new sexual partners. Community informants who live and work in each study area and represent a range of experience and information are selected, by convenience, in public places located in the study area. An exhaustive list of public venues in the study area where people meet new sexual partners is produced.

In the second phase of fieldwork, interviewers visit all venues located in the study area that were reported by community informants in the previous phase. A venue representative, such as a manager or owner of a business, is interviewed to obtain characteristics of the venue and of the people who socialize there.

During the third phase, in brief face-to-face interviews, individuals socializing at a sample of the venues are asked about their socio-demographic characteristics, as well as their new sexual partner acquisition, condom use, and venue attendance. Venues are selected for interviews with patrons using a systematic fixed interval sampling strategy with the probability of selection proportional to the size of the venue. The size of a venue is defined by the number of people socializing at the venue during a busy time as reported by the venue representative. This strategy produces a self-weighted sample in which every individual socializing at eligible venues has an equal probability of being selected for an interview. The interval sampling strategy also ensures that the selected venues are geographically distributed throughout the study area. Forty clusters of 24 individuals each are selected. Large venues may have multiple clusters. At venues where there are fewer than 24 socializing patrons, all individuals at the venue are interviewed. To reach the target number of 960 interviews, additional venues may be selected randomly with probability of selection proportional to the size of the venue. At the selected venues, potential respondents are sampled with an interval selection strategy designed to minimize interviewer bias when selecting respondents.

The PLACE method has been well described in several studies (Weir et al. 2003; Weir et al. 2004) and in the PLACE manual (MEASURE Evaluation 2005).

All interviews are anonymous and consent is obtained verbally. In Zambia individuals aged 18 years and older were eligible to participate in all three phases of the study. Individuals aged 15 to 17 years who were socializing at the venues were eligible to be interviewed in the third phase if they were voluntarily at the venue and acting in the capacity of an adult.

ZSBS Sampling

The sample design for the ZSBS called for a probability sample of about 2,500 households in which all eligible women 15-49 years of age and men 15-59 years of age were to be interviewed. The cluster-based household sample of 105 clusters was designed to be nationally representative. In urban clusters, the sample taken was about 20 persons from 16 households per cluster. In rural areas, the sample taken was about 20 persons from 34 households per cluster. A total of 2,465 households were sampled of which 2,444 households were located and found to be occupied. Interviews were completed for a total of 2,330 households, 2,174 women, and 2,046 men (CSO and MEASURE Evaluation 2006b).

The ZSBS had three types of instruments — a household questionnaire, an individual questionnaire, and a community questionnaire. The comparison of the ZSBS and PLACE studies utilizes only information collected via the individual questionnaire. The individual questionnaire was administered to eligible men and women in each household. It contained information regarding demographic characteristics, marital history, sexual behavior and partnerships, condom use, forced sex, circumcision, knowledge concerning HIV/AIDS and

sexually transmitted infections (STIs), stigma towards persons living with HIV/AIDS, and voluntary testing and counseling (VCT).

To facilitate comparison of the populations from the two different studies, identical questions about the number of sexual partners in the past four weeks and past year were included in both the ZSBS individual questionnaire and PLACE individual informant questionnaire.

Measures

Comparisons were made for several variables including age, working status and marital status. The variable for age was stratified into two categories 15-24 and 25+ because young people are of particular interest for HIV prevention efforts. Young women in Zambia, as in much of sub-Saharan Africa, have among the highest incidence rates of HIV. Working status was categorized either currently working or not working while marital status was categorized as ever versus never married.

Respondents were asked if they had consumed alcohol in the past 30 days. Alcohol use has been shown to have a strong relationship with HIV risk (Fisher, Bang and Kapiga 2007).

Several measures of risky sexual behaviors were compared – ever had sex, one or more new partner in the past 4 weeks, 2 or more partners in the past 12 months, 1 or more new partner in the past 12 months, condom usage at least sex (among sexually active respondents) and transactional sex (given or received money for sex) in the past 12 months. Looking at new partners is important because people with new partners are more at risk of both acquiring and transmitting HIV (Anderson 1999).

A composite indicator meant to capture risk is often presented in PLACE studies. This indicator is based on the number of new and total partners reported in the past 4 weeks and 12 months. Respondents are classified as having high, moderate or low rates of sexual partnerships. The classification is as follows:

High: new partner in past four weeks or multiple partners in past four weeks

Moderate: new or multiple partners in the past 12 months

Low: no new partners or no multiple partners in past 12 months.

Data Analyses

Chi-square tests of homogeneity were done to compare characteristics of respondents from the PLACE and the ZSBS. When a comparison included a cell size less than five, a Yates' correction for continuity was applied.

RESULTS

In the Mongu PLACE study, 149 venues were identified as places where people meet new sexual partners and an interview was conducted with a knowledgeable person at these venues. Interviews were completed with 635 men and 342 women who were socializing at 39 of the venues in Mongu. Only 2% of individuals approached for an interview declined to participate. In the Kapiri Mposhi PLACE study, 101 venues were identified as places where people meet new sexual partners and an interview was conducted with a venue representative. At 38 of these venues, 739 men and 286 women socializing were interviewed. Only 1% of individuals approached for an interview declined to participate.

For the ZSBS, 11 clusters were selected in Mongu and interviews were completed with 123 men and 202 women living in 136 households. In Kapiri Mposhi, eight clusters were selected and interviews were completed with 122 men and 140 women living in 114 households. There were five refusals in Mongu and one in Kapiri Mposhi for the ZSBS.

Tables 1–4 present Chi-Square comparisons of the PLACE and ZSBS for both Mongu and Kapiri Mposhi and for both men and women.

Sociodemographic Characteristics

For Mongu, the proportion of males 15-24 was significantly higher for the ZSBS (48%) than for PLACE (37%) at $X^2=5.5$, $df=1$, $p<0.05$. However for females the opposite was found. About 63% of the Mongu PLACE female respondents were 15-24 compared to 47% for the ZSBS at $X^2=14.3$, $df=1$, $p<0.01$. Comparisons of age of respondents in Kapiri Mposhi were not significant.

Differences in work status were not significant for males in either study. However females sampled in the ZSBS were more likely to be working than females in the PLACE studies in both Mongu ($X^2=17.6$, $df=1$, $p<0.01$) and Kapiri Mposhi ($X^2=8.4$, $df=1$, $p<0.05$).

Females in both PLACE studies were significantly more likely to be never married than females in the ZSBS (at $X^2=82.2$, $df=1$, $p<0.01$ for Mongu and $X^2=42.6$, $df=1$, $p<0.01$ for Kapiri Mposhi). Males in the Kapiri Mposhi PLACE study were also more likely to be never married than their counterparts in the ZSBS (at $X^2=21.6$, $df=1$, $p<0.01$), however the comparison was not significant for Mongu. Males and females in the ZSBS were also far less likely to have consumed alcohol in the past 30 days than their counterparts in the PLACE studies. All comparisons were significant at $p<0.01$.

Sexual Activity

Males in the PLACE studies were significantly more likely to report “ever had sex” than their counterparts in the ZSBS at $X^2=73.9$, $df=1$, $p<0.01$ for Mongu and $X^2=9.5$, $df=1$, $p<0.01$ for Kapiri Mposhi. Females interviewed for the Mongu PLACE study were also more likely to have ever had sex than females in the ZSBS at $X^2=29.1$, $df=1$, $p<0.01$). Differences for females in Kapiri Mposhi were not significant.

Respondents were asked if they had any new partners in the past 4 weeks. Reporting of a new partner in the past four weeks was very low for women in the ZSBS studies at less than <1% for both Mongu and Kapiri Mposhi. Women in the PLACE studies were significantly more likely to report a new partner in the past four weeks – 47% for Mongu and 20% for Kapiri Mposhi. Both comparisons were significant at $p<0.01$.

Males in the ZSBS also were far less likely to report a new partner in the past four weeks than males in the PLACE study. Five percent of males interviewed in the Mongu ZSBS and <1% in Kapiri Mposhi reported a new partner in the past four weeks, compared to 48% for Mongu PLACE and 20% for Kapiri Mposhi PLACE. Both comparisons were significant at $p<0.01$.

Reporting of two or more partners in the past 12 months was low for women in the ZSBS at 1% for Kapiri Mposhi and Mongu. Women in the PLACE studies were significantly more likely to report this high risk behavior (51% in Mongu and 38% in Kapiri Mposhi). Likewise males in the PLACE study were far more likely to report 2 or more partners in the past 12 months than those interviewed for the ZSBS. For Mongu reporting was 60% for Mongu PLACE versus 11% for the ZSBS at $X^2=100.6$, $df=1$, $p<0.01$. For Kapiri Mposhi reporting was 38% for Kapiri Mposhi and less than 2% for the ZSBS at $X^2=60.7$, $df=1$, $p<0.01$.

Reporting of 1+ new partner in the past 12 months was likewise much more common for PLACE respondents than ZSBS respondents for both males and females. All comparisons were significant at $p < 0.01$.

Results for the composite variable of risk are presented in Figures 1 and 2. About half of the men and women included in the Mongu PLACE population reported a high rate of partnership formation, defined as one new partner or two or more total partners in the past four weeks. Comparatively, only 7% of men and <1% of women interviewed as part of the ZSBS survey in Mongu reported a similarly high partnership rate. In Kapiri Mposhi, just over one quarter of men and women in the PLACE population reported a high partnership rate whereas 2% of men and 1% of women in the ZSBS population did so. These comparisons were significant at $p < 0.01$ and $df = 2$. The chi-square values were 156.0, 68.7, 217.0 and 59.5 for men in Mongu, men in Kapiri Mposhi, women in Mongu and women in Kapiri Mposhi, respectively.

Condom usage at last sex (among those sexually active) was low for all respondents, but significantly more common among PLACE respondents than ZSBS respondents. Comparisons were significant at $p < 0.01$ for Mongu and $p < 0.05$ for Kapiri Mposhi. Condom use at last sex was reported by 51% of females in the PLACE Mongu study compared to 15% in the ZSBS Mongu study. Usage was reported by 33% of PLACE Kapiri Mposhi respondents compared to 17% of ZSBS Kapiri Mposhi respondents. For males condom usage at last sex was reported by 46% in PLACE Mongu and 22% in ZSBS Mongu. In Kapiri Mposhi usage was 28% and 16% for the PLACE and ZSBS, respectively.

Respondents were asked if they had ever given or received money for sex in the past 12 months. Once again this high risk behavior was significantly more likely to be reported by PLACE respondents than ZSBS respondents. All comparisons were significant at $p < 0.01$.

Overlap of Populations

Only a very small subset of the ZSBS population was likely to be included in the PLACE study. ZSBS respondents were asked how many times in the past seven days/nights they visited a bar, disco, or nightclub. Only 14% of men interviewed for the ZSBS in Mongu and 2% of men in Kapiri Mposhi had visited such an establishment in the past seven days, and 8% of women in Mongu and <2% in Kapiri Mposhi visited such venues in the past seven days. However, while many of the venues identified by the PLACE method are bars, nightclubs, or discos (41% of venues in Mongu and 51% of venues in Kapiri Mposhi), many other types of venues were identified by the PLACE study and thus these individuals potentially had the opportunity to be interviewed for the PLACE study at one of these other locations. See table 5 and 6.

Similarly, the PLACE population is not a complete subset of the population included in the ZSBS. PLACE respondents were asked where they spent the previous night. While the majority of respondents spent the night at their family home, the home of a relative, or other household, many PLACE respondents spent the night in a commercial hotel, dormitory, or other location that would not have been included in a household survey. A quarter of men and 16% of the women in the Mongu PLACE study did not spend the previous night in a household and therefore would have been missed by a household survey. In the Kapiri Mposhi PLACE study, 10% of men and 9% of women did not spend the previous night in a household. These individuals who are left out in many household surveys can play a potentially important role in facilitating the transmission of HIV.

DISCUSSION

The comparison of the populations identified by the PLACE method with a representative sample of the population from the ZSBS offers insight into whether or not the PLACE study is indeed identifying those individuals at higher risk of acquiring and transmitting HIV. The objective of a PLACE study is to identify public venues where people at high risk of acquiring and transmitting HIV can be reached by intervention programs. The PLACE method does not take a risk group-based approach and focus on traditionally defined risk groups, such as commercial sex workers, truck drivers, or military, nor does it seek to identify and characterize a representative sample of people living in the study area. Rather, the goal is to identify those individuals in the study area with a high rate of new sexual partnerships. While many of the venues identified by a PLACE study are traditional hotspots such as bars, nightclubs, and informal drinking places, public meeting points such as markets, bus and train stations, and shops may also be included in a PLACE study as places where people meet new sexual partners. The idea is to link this information with prevention efforts.

Conversely, the ZSBS is a household survey with the goal of providing national, population-based estimates of a number of key indicators important to monitoring progress of the national HIV/AIDS/STD program. Respondents from a representative sample of people living in the study area were interviewed about personal sexual behaviors.

The PLACE populations in Zambia reported significantly greater new partner acquisition and commercial sex than the population included in the ZSBS, suggesting that the PLACE population is indeed at a greater risk of acquiring and transmitting HIV. The PLACE populations in Zambia also tended to be younger and more likely to be never married. Other studies have also found the PLACE population to have more risky behaviors than the general population (Weir et al. 2004; Weir et al. 2008; Spiezer et al. 2007). However this study is unique in being able to make district level comparisons during a specified time interval. The PLACE studies in Zambia and the ZSBS were designed simultaneously.

Self-presentation bias is likely to account for some of this difference in reported partnership rates between the two surveys. In the context of household surveys, sexual partnerships are believed to be under-reported (i.e. Huygens et al. 1996; Fenton et al. 2001; Cleland et al. 2004). Conversely, in the more relaxed setting of bars, nightclubs, and other PLACE venues, respondents might tend to over-report their sexual partnerships (Weir et al. 2004). The extent to which partnership rates were under or over reported is probably impossible to determine, but it is unlikely that these reporting biases account for the entire differences seen between the PLACE studies and the ZSBS.

High-risk behaviors were reported more frequently by PLACE respondents than by ZSBS respondents. Thus, targeting of prevention efforts at venues identified by the PLACE study will reach those individuals most contributing to the ongoing propagation of the HIV/AIDS epidemic. However, the behaviors reported by these individuals likely represent only a subset of the population and cannot be generalized to the larger population. The ZSBS does provide valuable insight into national trends in knowledge, attitudes, and behaviors. Thus, taken in concert with one another, the ZSBS and PLACE method provide a more complete picture of the behaviors contributing to the HIV epidemic at the micro and macro levels.

Studies such as this one are important for understanding how different methodologies can contribute to knowledge concerning HIV prevention efforts. Each method has its own utility but taken in conjunction with one another, they can best inform programmatic interventions in efforts to combat the HIV epidemic. Key recommendations for Zambia would be to use the ZSBS and other such household surveys to compare trends over time particularly in

terms of knowledge and attitudes regarding HIV. Such surveys can also be used to study trends in sexual behavior over time with the caveat that under-reporting is likely. For more concentrated prevention efforts at the local level, the PLACE method is recommended. In order to effectively combat the HIV/AIDS, epidemic individuals at high-risk of both acquiring and transmitted HIV must be targeted with specific prevention interventions. Such interventions can be most effective if implemented at the very places where individuals at greatest risk socialize and meet new partners.

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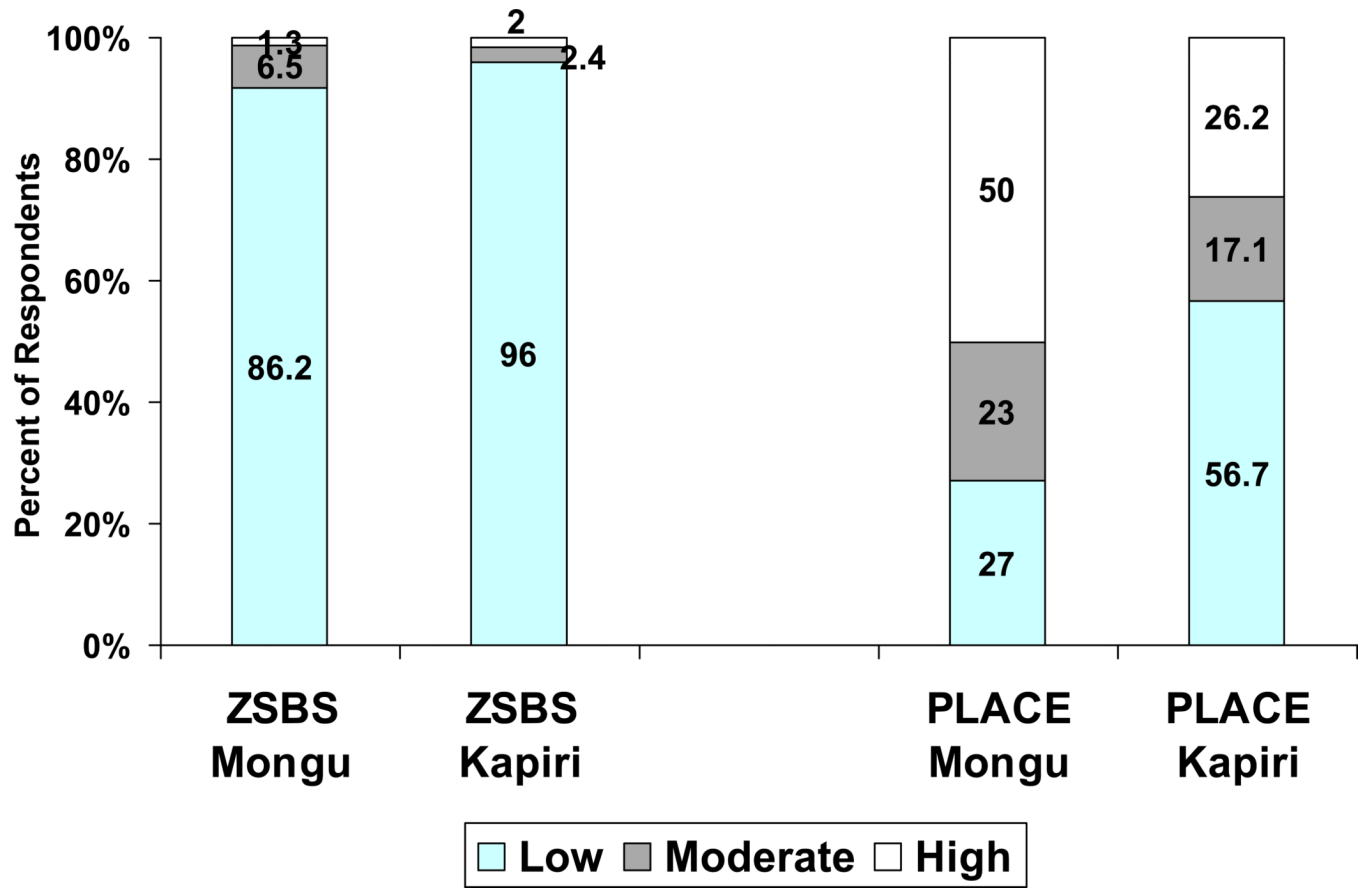


Figure 1.
Composite Indicator of Risk: Men

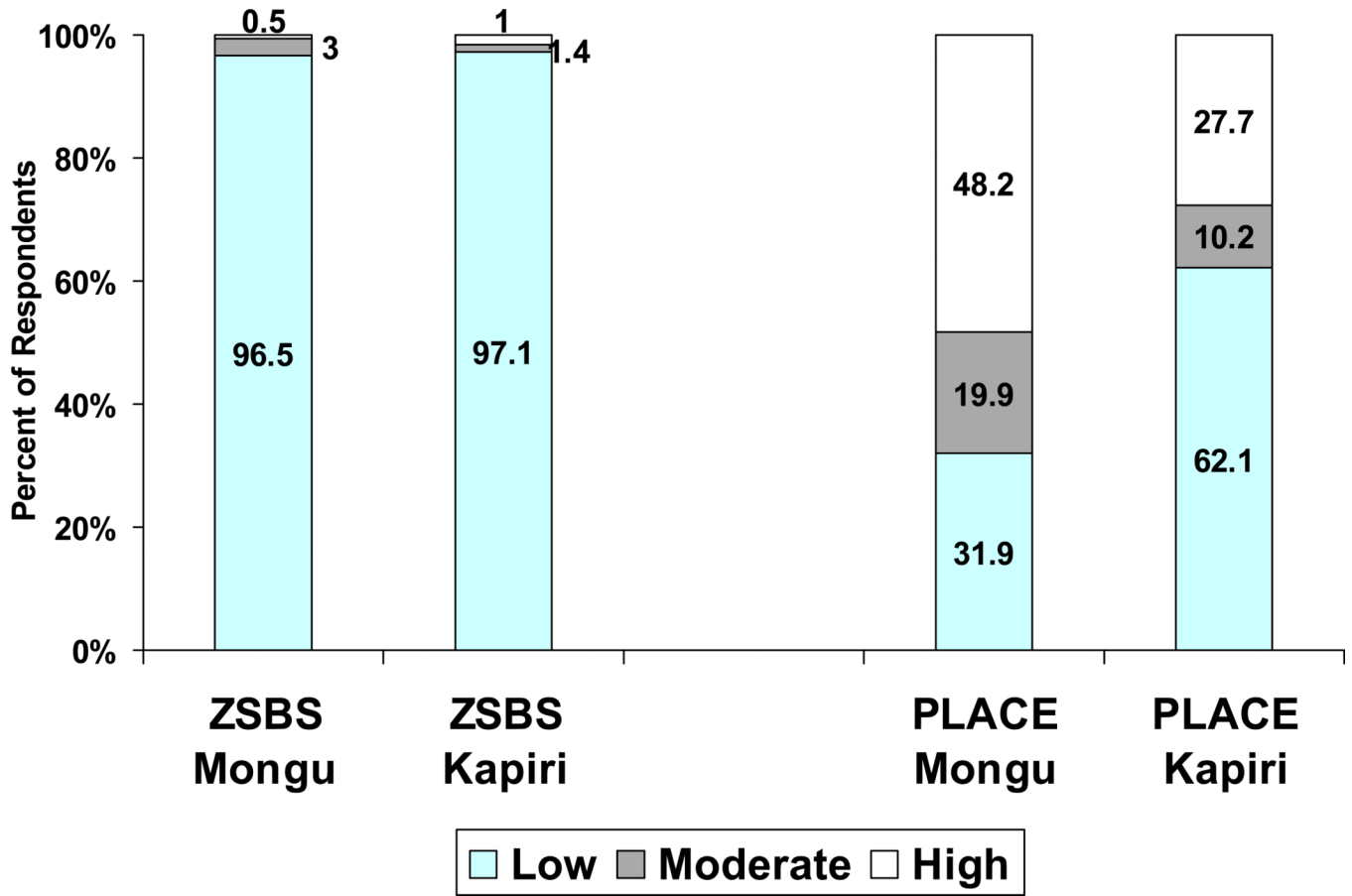


Figure 2.
Composite Indicator of Risk: Women

Table 1

Comparison of Characteristics of Males in Mongu, Zambia by Method

	PLACE N	Mongu %	ZSBS N	Mongu %
<u>Age*</u> ($X^2=5.5$, $df=1$)				
15–24	233	37%	59	48%
25+	402	63%	64	52%
<u>Currently Working</u> ($X^2=0.0$, $df=1$)				
Yes	309	50%	51	50%
No	313	50%	51	50%
<u>Marital Status</u> ($X^2=1.5$, $df=1$)				
Never Married	397	64%	71	58%
Ever Married	228	36%	52	42%
<u>Alcohol Consumption in Past 30 Days**</u> ($X^2=118.9$, $df=1$)				
None	207	33%	106	86%
Some	418	67%	17	14%
<u>Ever had Sex**</u> ($X^2=73.9$, $df=1$)				
Yes	628	99%	102	83%
No	7	1%	21	17%
<u>1+ new partner in the past 4 weeks**</u> ($X^2=78.5$, $df=1$)				
Yes	303	48%	6	5%
No	331	52%	117	95%
<u>2+ partners in past 12 months**</u> ($X^2=100.6$, $df=1$)				
Yes	380	60%	13	11%
No	254	40%	110	89%
<u>1+ new partner in past 12 months**</u> ($X^2=111.0$, $df=1$)				
Yes	434	69%	22	18%
No	198	31%	101	82%
<u>Condom use at last sex (among sexually active)**</u> ($X^2=16.7$, $df=1$)				
Yes	260	46%	18	22%
No	307	54%	64	78%
<u>Given or Received Money for Sex in past 12 months**</u> ($X^2=51.2$, $df=1$)				
Yes	266	42%	10	8%
No	366	58%	113	92%

* $p<0.05$ ** $p<0.01$

Table 2

Comparison of Characteristics of Males in Kapiri Mposhi, Zambia by Method

	PLACE N	Kapiri Mposhi %	ZSBS N	Kapiri Mposhi %
<u>Age ($X^2=2.4$, $df=1$)</u>				
15-24	220	30%	28	23%
25+	519	70%	94	67%
<u>Currently Working** ($X^2=13.1$, $df=1$)</u>				
Yes	485	66%	97	83%
No	248	34%	20	17%
<u>Marital Status** ($X^2=21.6$, $df=1$)</u>				
Never Married	312	43%	25	20%
Ever Married	418	57%	97	80%
<u>Alcohol Consumption in Past 30 Days** ($X^2=76.7$, $df=1$)</u>				
None	181	25%	78	64%
Some	554	75%	44	36%
<u>Ever had Sex* ($X^2=9.5$, $df=1$)</u>				
Yes	706	96%	109	89%
No	30	4%	13	11%
<u>1 + new partner in the past 4 weeks** ($X^2=25.8$, $df=1$)</u>				
Yes	148	20%	1	<1%
No	588	80%	121	99%
<u>2+ partners in past 12 months** ($X^2=60.7$, $df=1$)</u>				
Yes	279	38%	2	2%
No	458	62%	120	98%
<u>1+ new partner in past 12 months** ($X^2=48.5$, $df=1$)</u>				
Yes	267	36%	5	4%
No	470	64%	117	96%
<u>Condom use at last sex (among sexually active)* ($X^2=5.2$, $df=1$)</u>				
Yes	175	28%	14	16%
No	442	72%	73	84%
<u>Given or Received Money for Sex in past 12 months** ($X^2=34.8$, $df=1$)</u>				
Yes	174	24%	0	0%
No	561	76%	122	100%

* $p<0.05$ ** $p<0.01$

Table 3

Comparison of Characteristics of Females in Mongu, Zambia by Method

	PLACE	Mongu	ZSBS	Mongu
	N	%	N	%
<u>Age** (X²=14.3, df=1)</u>				
15–24	216	63%	94	47%
25+	126	37%	108	53%
<u>Currently Working** (X²=17.6, df=1)</u>				
Yes	99	30%	92	48%
No	235	70%	100	52%
<u>Marital Status** (X²=82.2, df=1)</u>				
Never Married	272	82%	89	44%
Ever Married	60	18%	113	56%
<u>Alcohol Consumption in Past 30 Days** (X²=126.3, df=1)</u>				
None	157	47%	191	95%
Some	179	53%	11	5%
<u>Ever had Sex** (X²=29.1, df=1)</u>				
Yes	335	99%	177	88%
No	4	1%	25	12%
<u>1 + new partner in the past 4 weeks** (X²=129.6, df=1)</u>				
Yes	161	47%	1	<1%
No	181	53%	201	99%
<u>2+ partners in past 12 months** (X²=141.4, df=1)</u>				
Yes	176	51%	3	1%
No	166	49%	199	99%
<u>1+ new partner in past 12 months** (X²=166.8, df=1)</u>				
Yes	221	65%	15	7%
No	121	35%	187	93%
<u>Condom use at last sex (among sexually active)** (X²=47.4, df=1)</u>				
Yes	156	51%	19	15%
No	152	49%	110	85%
<u>Given or Received Money for Sex in past 12 months** (X²=124.3, df=1)</u>				
Yes	159	47%	3	1%
No	176	53%	199	99%

* p<0.05

** p<0.001

Table 4

Comparison of Characteristics of Females in Kapiri Mposhi, Zambia by Method

	PLACE N	Kapiri Mposhi %	ZSBS N	Kapiri Mposhi %
<u>Age ($X^2=0.0$, $df=1$)</u>				
15–24	129	45%	64	46%
25+	157	55%	76	54%
<u>Currently Working* ($X^2=8.4$, $df=1$)</u>				
Yes	120	43%	76	58%
No	161	57%	55	42%
<u>Marital Status** ($X^2=42.6$, $df=1$)</u>				
Never Married	134	48%	21	15%
Ever Married	148	52%	119	85%
<u>Alcohol Consumption in Past 30 Days** ($X^2=70.3$, $df=1$)</u>				
None	146	52%	130	93%
Some	137	48%	10	7%
<u>Ever had Sex ($X^2=7.6$, $df=1$)</u>				
Yes	272	96%	125	89%
No	11	4%	15	11%
<u>1 + new partner in the past 4 weeks** ($X^2=28.1$, $df=1$)</u>				
Yes	57	20%	1	<1%
No	227	80%	139	99%
<u>2+ partners in past 12 months** ($X^2=63.5$, $df=1$)</u>				
Yes	108	38%	2	1%
No	176	62%	138	99%
<u>1+ new partner in past 12 months** ($X^2=52.7$, $df=1$)</u>				
Yes	106	37%	6	4%
No	178	63%	134	96%
<u>Condom use at last sex (among sexually active)* ($X^2=9.1$, $df=1$)</u>				
Yes	72	33%	17	17%
No	147	67%	85	83%
<u>Given or Received Money for Sex in past 12 months** ($X^2=37.6$, $df=1$)</u>				
Yes	67	24%	0	0%
No	216	76%	140	100%

* $p < 0.05$ ** $p < 0.01$

Table 5

MEN: Venue (Bar/Disco/Nightclub) Visiting.

	Mongu		Kapiri Mposhi	
	PLACE (N=370 [*])	ZSBS (N=123)	PLACE (N=503 [*])	ZSBS (N=122)
Numbers of Days Visited a Bar/Disco/Nightclub in the Past Seven Days and Nights				
0	0.0	85.4	0.0	98.4
1	30.3	4.9	26.1	0.8
2	14.9	3.3	12.9	0.8
3	11.6	2.4	11.9	0.0
4	8.1	0.0	8.4	0.0
5	1.4	0.0	6.0	0.0
6	6.8	0.0	6.4	0.0
7	24.3	3.3	27.6	0.0
Missing	2.7	0.8	0.8	0.0
Total	100.0	100.0	100.0	100.0
Mean	3.5	0.4	3.9	0.0
Median	3.0	0.0	3.0	0.0

* PLACE sample restricted to those individuals who were interviewed at a bar, disco, or nightclub and these respondents were asked the frequency with which they visited the site where they were interviewed.

Table 6

WOMEN: Venue (Bar/Disco/Nightclub) Visiting.

	Mongu		Kapiri Mposhi	
	PLACE (N=187*)	ZSBS (N=202)	PLACE (N=146*)	ZSBS (N=140)
Numbers of Days Visited a Bar/Disco/Nightclub in the Past Seven Days and Nights				
0	0.0	90.6	0.0	97.9
1	24.1	0.5	28.1	0.0
2	9.6	0.5	14.4	1.4
3	11.2	0.5	13.7	0.0
4	10.7	0.0	8.2	0.0
5	3.7	1.0	2.1	0.0
6	9.1	0.5	5.5	0.0
7	30.0	5.0	27.4	0.0
Missing	1.6	1.5	0.7	0.7
Total	100.0	100.0	100.0	100.0
Mean	4.1	0.5	3.7	0.0
Median	4.0	0.0	3.0	0.0

* PLACE sample restricted to those individuals who were interviewed at a bar, disco, or nightclub and these respondents were asked the frequency with which they visited the site where they were interviewed.