Explaining discrepancies in reproductive health indicators from population-based surveys and exit surveys: a case from Rwanda

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Objectives: Reproductive health programmes often need exit surveys and population-based surveys for monitoring and evaluation. This study investigates why such studies produce discrepant estimates of condom use, sexual behaviour and condom brand knowledge, and discusses the implications for future use of exit surveys for programme monitoring.

Methods: Logistic regression is used to explain differences between a household survey of 1295 persons and an exit survey among a random sample of 2550 consumers at retail outlets in Rwanda.

Results: Discrepancies in ever use of condoms and risky sexual behaviours are due to differences in socioeconomic status of the two samples. After controls, exit surveys at most outlet types have the same results as the household survey. Only exit surveys at bars, nightclubs and hotels yield significantly different estimates. However, the above-average knowledge of Prudence Plus condoms in the exit interviews is not attributable to socioeconomic or demographic variables, most likely because respondents have seen the product at the outlets.

Conclusions: Information about condom use and sexual behaviour obtained from exit surveys appears as accurate as that obtained through household surveys. Nevertheless, exit surveys must be used cautiously. Because exit surveys may include wealthier and better-educated respondents, they are not representative of the general population. The composition of exit survey samples should be validated through existing household surveys. Comparisons across survey types are generally unadvisable, unless they control for sample differences. When generalizing to the population at large is not needed (e.g. for studies aimed at identifying the characteristics and behaviour of users of particular products or services), exit surveys can provide an appropriate alternative to household surveys.

Introduction

While population-based condom-use surveys and exit surveys generally have different objectives, they tend to complement one another and it is not uncommon for such surveys to include similar questions. It appears, however, that the two types of studies tend to yield different results for comparable outcome measures. For example, exit surveys in Malawi, Mozambique and Côte d’Ivoire found high rates of condom use among consumers at retail outlets (Meekers 1998a, b; Monjane 1999), while earlier evidence from these countries suggested levels of condom use were relatively low. In the case of Rwanda, 1998 results from a population-based survey indicate that 18% of males and 7% of females have ever used condoms, while results from an exit survey at retail outlets indicate that 44% of male patrons and 20% of female patrons have used them (Calvès 1998; IRESCO 1998).

While discrepancies are expected due to the differences in the sampling procedures, the magnitude of the difference raises concerns that information from exit surveys may not be reliable. This study examines whether data from the Rwandan population-based survey and the exit survey provide similar results when controlling for differences in sample characteristics. Specifically, we investigate discrepancies in reports on sexual risk behaviour, knowledge of Prudence Plus brand condoms, and ever use of condoms. The results of this study have important implications for the future use of exit surveys for programme monitoring.

The relative merits of population-based surveys and exit surveys

Population-based surveys and exit surveys generally have different objectives, and they each have their strengths and weaknesses. Population-based surveys have been widely used to obtain information about sexual and reproductive health. Their major advantage is that they provide information on a representative sample of the population. Consequently, study results can be generalized to the larger population. Population-based surveys are ideal for measuring
programme evaluation indicators, such as exposure to an HIV prevention campaign, levels of knowledge and awareness of HIV and reproductive health issues, or the prevalence of condom use. However, population-based surveys have several important drawbacks. They tend to be expensive and time-consuming (Family Health International 1988). For this reason, these surveys are generally conducted at the outset and end of an intervention, and do not provide information on the interim period.

Moreover, population-based surveys tend to be ill-suited to address several research questions that are of key importance to programme managers who are implementing HIV prevention programmes or other reproductive health programmes. For example, programme managers often require detailed information about condom users. They may want to know if current condom users are having any problems with the brand they are using, whether their preferred brand is accessible, which type of advertising they find most appealing, how much they would be willing to pay for condoms, etc. Such information helps managers to identify problems and weaknesses in the programme, and to make appropriate adjustments.

In theory, such information can be obtained through population-based surveys. However, when the prevalence of condom use is low, a population-based survey may not include a sufficiently large number of condom users. For example, in a 1998 Rwanda survey, only 99 out of 1576 sexually experienced respondents had ever used a condom (Calvès 1998). Increasing the sample size is often not possible due to budget constraints.

To obtain detailed information about the users of a specific health product or service, it is often more effective to conduct exit surveys among patrons of the establishments that deliver the product or service. Exit surveys have been used extensively in quality of care studies (Kim et al. 1992; Vera 1993; Brown et al. 1995; Hardon 1997; Kamat and Nichter 1998). Social marketing organizations also use exit surveys to get a better understanding of the profile of their consumers. Simple forms of exit surveys include consumer intercept surveys, which only sample respondents who are observed purchasing the product in question. Because such surveys do not contain information about non-users, or users of other brands, they cannot provide information about condom use prevalence rates. More sophisticated exit surveys sample the entire target population (Bertrand et al. 1989). For example, condom consumer profile surveys use a sample of all consumers that patronize retail outlets that sell condoms, such as pharmacies, supermarkets and kiosks (Meekers 1998a, b; Monjane 1999). Because these types of exit surveys include non-users, they can provide data on the prevalence of condom use. Exit surveys tend to be less time-consuming and less expensive than population-based surveys. However, they only sample the sub-population of consumers, who are expected to be wealthier than the general population. Also, respondents tend to have less privacy during the interview, which raises concerns about the quality of data, especially on sensitive subjects such as reproductive health behaviour.

Data and methods
This paper is based on data from the 1998 Rwanda Sexual Behaviour and Condom Use Survey and the 1998 Rwanda Condom Consumer Profile Survey. These two data sources were selected because they were conducted simultaneously in the same geographic area. Both surveys were commissioned by PSI (Population Services International) as part of the evaluation activities for the Rwanda condom social marketing programmes.

Data sources
The population-based survey was conducted in May–June 1998 and covers all prefectures, except Ruhengeri, Kibuye and Gisenyi, which were unsafe at the time of the survey (Calvès 1998). The survey was implemented using a multi-stage, stratified sampling procedure based on Rwanda’s administrative divisions (prefecture, commune, sector and cellule). In each prefecture, two rural communes and one urban commune were randomly selected. Within each selected commune, sectors were randomly selected, and within the latter two cellules were randomly selected. In each selected cellule, households were selected using a predetermined sampling interval. The target number of households was 1800. One respondent was randomly selected from all adult household members, and informed consent was obtained. Same-sex interviewers interviewed all respondents. Up to two attempts were made to contact the selected respondent, after two unsuccessful attempts a replacement household was selected. In total, 1786 interviews were successfully completed.

The Rwanda Condom Consumer Profile Survey is an exit survey conducted among patrons of retail outlets (IRESCO 1998). The survey covered the same prefectures as the population-based survey, and used identical procedures for selecting the communes. Three groups of outlets were distinguished: (1) bars, nightclubs and hotels; (2) grocery stores, boutiques and kiosks; and (3) pharmacies and health centres. Except for Kigali city, two outlets of each group were randomly selected in each commune. In total, 154 retail outlets were included in the study. After obtaining informed consent from the outlet managers, a male and a female interviewer were stationed at each outlet for an entire business day. All patrons aged 14–35 years were eligible for interviewing, independent of their reason for visiting the outlet. Interviewing started with the first patron to leave the outlet. Upon completion of the interview, the next patron to leave was approached, and so forth. During the interviews, a count of the number of passers-by was kept, to enable us to calculate the sampling fraction. In total, 9270 eligible persons frequented the outlets included in the sample, of whom 2593 were interviewed. Informed consent was obtained verbally from all respondents. Interviews with male patrons were conducted by male interviewers and vice versa.

Measures
The main dependent variables to be analyzed are: (1) whether the respondent has ever used a condom; (2) whether he/she has heard of Prudence Plus brand condoms; and (3)
whether he/she reports having three or more sexual partners in the past year. We control for sampling differences in age, gender, rural/urban residence, prefecture, secondary education, marital status, number of children ever born, and socioeconomic status. We measure socioeconomic status using a variant of the Amenities and Possessions Index, which is based on household availability of four consumer products (radio, TV, car and bicycle), and three amenities (electricity, tap water and an indoor toilet). This indicator is preferred over income-based measures because it is less sensitive to intra-household resource allocation (Kishor and Neitzel 1996). The effect of the survey type is measured using a categorical variable, indicating the place of interview: (1) bar/nightclub/hotel; (2) grocery store, boutique or kiosk; (3) pharmacy or health centre; or (4) the household.

**Methods**

For comparability, the analysis has been restricted to respondents aged 15–35. This limits the sample size to 1295 for the population-based survey, and to 2550 for the exit survey. The analysis is conducted using the merged data set. We use logistic regression analysis to evaluate whether significant sample differences in the outcome measures persist after controlling for the background variables. We then calculate adjusted proportions to estimate what the expected proportion would be if all respondents had the same background characteristics as those in the household survey sample (StataCorp 1999). We first adjust for three indicators of socioeconomic status only (API index, secondary education and urban residence), and then for all control variables (the three indicators of socioeconomic status plus age, gender, prefecture, marital status and the number of children ever born).

**Results**

**Sample characteristics of the population-based and exit surveys**

Table 1 shows the characteristics of the exit survey samples and the population-based household survey. For the exit surveys, we distinguish between exit interviews conducted at (1) bars, nightclubs and hotels, (2) grocery stores, boutiques and kiosks, and (3) pharmacies and health centres. We anticipate that there will be substantial differences in the characteristics of exit survey respondents and household survey respondents. Specifically, exit surveys are expected to contain a disproportionate share of wealthy respondents, because wealthier persons shop more frequently than poorer respondents. In addition, some types of retail outlets are expected to cater to specific sub-populations. For example, one may expect that bars have a clientele that is predominantly male.

The results show that the exit surveys contain a much larger share of urban residents than the household survey. While only 37% of household survey respondents live in urban areas, over 55% of respondents in each of the three types of exit surveys are urban residents. This finding was anticipated as urban respondents tend to have more disposable income and purchasing power than rural respondents. Breakdown by socioeconomic status further confirms that exit survey respondents are much wealthier than household survey respondents. In the household survey only 15% of respondents are classified as having a medium–high or high socioeconomic status, compared with 40% for the exit surveys at bars/nightclubs/hotels, 40% for groceries/boutiques/kiosks and 33% for pharmacies/health centres.

<table>
<thead>
<tr>
<th>Table 1. Sample characteristics for retail outlet exit surveys and population-based household surveys (percentages)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail outlet exit surveys</td>
</tr>
<tr>
<td>Urban</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td>None</td>
</tr>
<tr>
<td>Primary/professional</td>
</tr>
<tr>
<td>Secondary or higher</td>
</tr>
<tr>
<td>Amenities &amp; possessions index</td>
</tr>
<tr>
<td>Low</td>
</tr>
<tr>
<td>Medium</td>
</tr>
<tr>
<td>Medium-high or high</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>15–19</td>
</tr>
<tr>
<td>20–24</td>
</tr>
<tr>
<td>25–29</td>
</tr>
<tr>
<td>30–35</td>
</tr>
<tr>
<td>Ever married</td>
</tr>
<tr>
<td>Children ever born</td>
</tr>
<tr>
<td>None</td>
</tr>
<tr>
<td>One</td>
</tr>
<tr>
<td>Two</td>
</tr>
<tr>
<td>Three or more</td>
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<tr>
<td>Christian</td>
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</tbody>
</table>
Exit survey respondents also have somewhat different socio-demographic characteristics than household survey respondents. For example, exit surveys at bars/nightclubs/hotels and groceries/boutiques/kiosks include a high percentage of males. All three types of exit survey also contain a higher percentage of youths aged 15–19 than the household survey, but this differential appears to stem from under-sampling of youths aged 15–19 in the household survey (during the school year many youths reside in boarding schools). Consistent with this age differential, household survey respondents are less likely than exit survey respondents to be childless. Household survey respondents are also much more likely than exit survey respondents to be ever married (60% versus 35–43% for the exit surveys).

Ever use of condoms is investigated using logistic regression analyses. Three different models are tested. The first model shows the unadjusted percentage of respondents who report that they have used condoms at least once. The second model shows the percentage who have ever used condoms after adjusting for differences in rural/urban residence, socioeconomic status and secondary education. The third model shows the percentage after adjusting for all control variables. If discrepancies in levels of condom use between the samples are due to differences in the characteristics of the samples, then they should disappear after controls. If they persist, then the discrepancies must be attributed to other factors, possibly differences in data quality. Such discrepancies could also stem from selection biases that we did not control for, such as behavioural factors. For example, persons frequenting bars and clubs may have an above-average sexual risk behaviour.

The results are shown in Table 2. The first panel shows the results for male respondents. For males, the unadjusted percentages show that 35% of patrons at pharmacies and health centres and 42% of patrons of groceries, boutiques and kiosks had ever used condoms, compared with 56% of men in bars, nightclubs and hotels. Each of these levels is significantly higher than the 23% for males interviewed in the household survey. After adjusting for sample differences in the three indicators of socioeconomic status, the results for exit surveys at groceries/boutiques/kiosks and at pharmacies/health centres are no longer significantly different from those for the household survey. The adjusted percentage of condom users for exit surveys in bars/nightclubs/hotels remains significantly higher than for the household survey (39% vs. 21%). Adjusting for other socio-demographic control variables has no noticeable impact.

The results for females, shown in the second panel of Table 2, indicate that condom use reported in exit surveys at groceries/boutiques/kiosks and bars/nightclubs/hotels is significantly higher than for the household survey. Only 9% of women in the household survey have ever used condoms, compared with 23% of those interviewed in exit surveys at groceries/boutiques/kiosks and 27% of those at bars/nightclubs/hotels. The results for exit surveys at pharmacies/health centres do not differ significantly from those for the household survey.

Adjusting for sample differences in urban residence, socioeconomic status and secondary education reduces these differences considerably. The adjusted percentage for exit surveys at bars/nightclubs/hotels is 13%, compared with 7% for the population-based survey. For exit surveys at groceries/boutiques/kiosks, the adjusted figure (11%) is not significantly different from the population-based survey. Adjusting for all background variables does not affect these differentials.

### Table 2. Unadjusted and adjusted percentage of respondents who have ever used condoms, by sample and gender

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Unadjusted % (95% CI)</th>
<th>Adjusted for urban residence, secondary education and SES % (95% CI)</th>
<th>Adjusted for all control variables% (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Males</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar, nightclub, hotel</td>
<td>374</td>
<td>55.6 (50.5–60.6)</td>
<td>38.6 (32.8–44.8)</td>
<td>39.9 (33.6–46.5)</td>
</tr>
<tr>
<td>Grocery, kiosk, boutique</td>
<td>404</td>
<td>42.1 (37.4–47.0)</td>
<td>26.5 (22.0–31.7)</td>
<td>26.6 (21.8–32.0)</td>
</tr>
<tr>
<td>Pharmacy, health centre</td>
<td>328</td>
<td>35.4 (30.4–40.7)</td>
<td>19.8 (15.7–24.7)</td>
<td>19.9 (15.5–25.0)</td>
</tr>
<tr>
<td>Household survey (ref)</td>
<td>516</td>
<td>23.4 (20.0–27.3)</td>
<td>21.3 (17.7–25.2)</td>
<td>21.1 (17.6–25.0)</td>
</tr>
<tr>
<td><strong>Females</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar, nightclub, hotel</td>
<td>189</td>
<td>27.0 (21.1–33.8)</td>
<td>12.5 (8.6–17.8)</td>
<td>12.4 (8.4–17.8)</td>
</tr>
<tr>
<td>Grocery, kiosk, boutique</td>
<td>222</td>
<td>23.0 (17.9–29.0)</td>
<td>10.6 (7.3–15.1)</td>
<td>10.7 (7.3–15.5)</td>
</tr>
<tr>
<td>Pharmacy, health centre</td>
<td>341</td>
<td>12.3 (9.2–16.2)</td>
<td>7.2 (5.0–10.2)</td>
<td>7.0 (4.8–10.1)</td>
</tr>
<tr>
<td>Household survey (ref)</td>
<td>572</td>
<td>8.9 (6.8–11.5)</td>
<td>7.3 (5.4–9.7)</td>
<td>7.2 (5.3–9.6)</td>
</tr>
</tbody>
</table>

*a* Controlled for age, gender, rural/urban residence, prefecture, secondary education, marital status, number of children ever born, and socioeconomic status.

*b* Percentages differ significantly from the household survey (p < 0.05). SES = socioeconomic status.
other background variables has no noticeable effect on these differentials.

The results for females show that the majority of women have also heard about Prudence Plus brand condoms. Differentials by survey type exhibit a nearly identical pattern to that observed for males. Knowledge of Prudence Plus is significantly higher for the three exit surveys than for the population-based survey. Controlling for indicators of social and economic status reduces these differentials a little, but they remain significant.

Reported levels of sexual risk behaviour

The unadjusted and adjusted percentage of respondents who reported having three or more sexual partners in the last 12 months is shown in Table 4. Among males, only 7% of those in the household survey report having three or more partners, compared with 25% for exit surveys at bars/nightclubs/hotels, pharmacies/health centres. After adjusting for the indicators of socioeconomic status, only the sexual behaviour of exit interview respondents at bars/nightclubs/hotels remains significantly higher than the household survey (20% vs. 7%). Adjusting for the remaining variables produces little change in the percentage. Among women, only the sexual behaviour of exit interview respondents at bars/nightclubs/hotels differs from that of the household survey respondents (11% vs. 1%). Adjustments have very little effect on this differential.

Discussion

Population-based condom use surveys and exit surveys often yield very different results for comparable outcome measures. These differences raise questions about the extent to which exit surveys can be used for evaluating and monitoring programmes. Thus far, exit surveys have been relatively underused for programme monitoring, in part because

Table 3. Unadjusted and adjusted percentage of respondents who had heard of Prudence Plus brand condoms, by sample and gender

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Unadjusted % (95% CI)</th>
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<th>Adjusted for all control variables% (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Bar, nightclub, hotel</td>
<td>448</td>
<td>97.8% (95.9–98.8)</td>
<td>96.6% (93.8–98.2)</td>
<td>96.9% (94.1–98.4)</td>
</tr>
<tr>
<td>Grocery, kiosk, boutique</td>
<td>528</td>
<td>96.8% (94.9–97.9)</td>
<td>95.6% (93.0–97.3)</td>
<td>95.6% (92.8–97.4)</td>
</tr>
<tr>
<td>Pharmacy, health centre</td>
<td>450</td>
<td>96.7% (94.5–98.0)</td>
<td>95.4% (94.5–97.2)</td>
<td>95.7% (92.8–97.5)</td>
</tr>
<tr>
<td>Household survey (ref)</td>
<td>606</td>
<td>84.2% (81.0–86.9)</td>
<td>86.2% (83.1–88.9)</td>
<td>86.9% (83.7–89.5)</td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Bar, nightclub, hotel</td>
<td>271</td>
<td>81.9% (76.9–86.1)</td>
<td>74.9% (68.1–80.7)</td>
<td>75.2% (68.2–81.0)</td>
</tr>
<tr>
<td>Grocery, kiosk, boutique</td>
<td>380</td>
<td>78.9% (74.6–82.8)</td>
<td>73.3% (67.8–78.3)</td>
<td>72.7% (66.6–78.0)</td>
</tr>
<tr>
<td>Pharmacy, health centre</td>
<td>473</td>
<td>78.0% (74.1–81.5)</td>
<td>75.6% (71.0–79.6)</td>
<td>75.4% (70.7–79.6)</td>
</tr>
<tr>
<td>Household survey (ref)</td>
<td>689</td>
<td>64.0% (60.3–67.5)</td>
<td>66.6% (62.7–70.2)</td>
<td>68.9% (63.0–70.5)</td>
</tr>
</tbody>
</table>

a Controlled for age, gender, rural/urban residence, prefecture, secondary education, marital status, number of children ever born, and socioeconomic status.

b Percentages differ significantly from the household survey (p < 0.05). SES = socioeconomic status.

Table 4. Unadjusted and adjusted percentage of respondents who reported having three or more sexual partners in the last 12 months, by sample and gender

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<tr>
<th></th>
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<th>Unadjusted % (95% CI)</th>
<th>Adjusted for urban residence, secondary education and SES % (95% CI)</th>
<th>Adjusted for all control variables% (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar, nightclub, hotel</td>
<td>441</td>
<td>25.2% (21.3–29.4)</td>
<td>19.8% (15.7–24.5)</td>
<td>17.8% (13.7–22.7)</td>
</tr>
<tr>
<td>Grocery, kiosk, boutique</td>
<td>519</td>
<td>12.9% (10.3–16.1)</td>
<td>9.9 (7.5–13.0)</td>
<td>9.1 (6.7–12.3)</td>
</tr>
<tr>
<td>Pharmacy, health centre</td>
<td>443</td>
<td>11.1% (8.5–14.3)</td>
<td>8.4 (6.1–11.5)</td>
<td>7.4 (5.2–10.4)</td>
</tr>
<tr>
<td>Household survey (ref)</td>
<td>606</td>
<td>7.1% (5.3–9.4)</td>
<td>6.8 (5.1–9.1)</td>
<td>6.4 (4.7–8.6)</td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar, nightclub, hotel</td>
<td>269</td>
<td>10.8% (7.6–15.1)</td>
<td>9.4% (6.1–14.1)</td>
<td>8.0% (4.8–13.1)</td>
</tr>
<tr>
<td>Grocery, kiosk, boutique</td>
<td>378</td>
<td>1.9% (0.9–3.8)</td>
<td>1.6 (0.7–3.5)</td>
<td>1.4 (0.6–3.2)</td>
</tr>
<tr>
<td>Pharmacy, health centre</td>
<td>468</td>
<td>2.1% (2.1–3.9)</td>
<td>1.9 (1.0–3.7)</td>
<td>1.8 (0.9–3.5)</td>
</tr>
<tr>
<td>Household survey (ref)</td>
<td>689</td>
<td>1.2% (0.6–2.3)</td>
<td>1.1 (0.6–2.2)</td>
<td>0.8 (0.4–1.7)</td>
</tr>
</tbody>
</table>

a Controlled for age, gender, rural/urban residence, prefecture, secondary education, marital status, number of children ever born, and socioeconomic status.

b Percentages differ significantly from the household survey (p < 0.05). SES = socioeconomic status.
of concerns that exit survey samples may not be representa-
tive and in part because lack of (or limited) privacy during the
interviews may reduce the reliability of the results.

This study shows that samples of randomly selected con-
sumers at retail outlets in Rwanda are not representative of
the general population. Most notably, consumers tend to have
an above-average socioeconomic status, which affects several
health-related outcome measures. However, in some cases
there may be other differences. For example, exit interviews
at bars, nightclubs and hotels appear to yield samples with an
above-average number of sexual partners.

Estimates of the percentage who have ever used condoms,
who have heard of Prudence Plus brand condoms, and who
have had three or more partners in the last year were signifi-
cantly higher in exit surveys than in a population-based
survey. The analysis shows that this differential in condom
use and in the number of sexual partners is largely explained
by the fact that patrons at retail outlets such as grocery stores,
kiosks, boutiques, pharmacies and health centres have an
above average socioeconomic status. The only exceptions are
exit surveys at bars, clubs and hotels, which yield substantially
higher estimates, even after adjusting for indicators of socio-
economic status. These findings are not surprising given that
such outlets often attract commercial sex workers. It is
notable that the above-average knowledge of Prudence Plus
condoms in the exit interviews cannot be attributed to socio-
economic status or other socio-demographic variables. We
speculate that the differential is caused by the fact that many
of these retail outlets carry this brand of condoms (as it is the
dominant brand in Rwanda). Hence, regular patrons are
likely to have seen the product or its advertisements.

The finding that few significant differentials in sexual behav-
ior and condom use remain between the exit surveys and
the household survey, after controlling for differences in
sample characteristics, suggests that these exit surveys pro-
vided reliable information about condom use and sexual
behaviour. In fact, the reliability – the degree to which
respondents give accurate answers – of the exit surveys
appears to be comparable to that of household surveys.
Nevertheless, to get additional information on the reliability
of exit surveys, it would be valuable to try to replicate this
study in other countries, and to expand it to other measures
of condom use. Resources permitting, exit surveys could
collect comprehensive information on all commonly used
programme indicators, including indicators of HIV/AIDS
knowledge, number of regular and casual sexual partners in
the past 12 months, condom use in the last sex act (by
partner type), reasons for non-use, and indicators of pro-
gramme exposure.1

The finding that exit survey samples are not representative of
the general population is more problematic. Given that exit
surveys appear to yield samples with an above-average
socioeconomic status, results from exit surveys cannot be
used to make inferences about the general population, unless
a household survey is available to validate the sample (or to
enable adjustments or weighting). In other words, stand-
alone exit surveys have a fairly limited use. In many cases, the
composition of exit survey samples can be validated through
existing household surveys, such as a Demographic and
Health Survey (DHS) or a similar survey.

Even where both types of survey are available, one should
refrain from comparing unadjusted outcome measures across
study types. Such comparisons should only be made, with
cautions, if it has been demonstrated that the samples have
similar characteristics. When the samples do have different
characteristics, the data should be tabulated by subgroup to
allow for more meaningful comparisons. Alternatively, data
from the exit survey can be weighted so that they replicate the
sample distribution of the household survey.

Of course, there are also many instances in which it is not
necessary, or desirable, to generalize to the larger population.
This is often the case when one is interested mostly in assess-
ing the characteristics (and behaviour) of the population that
is using a particular type of service or product. For example,
managers of a family planning programme may be interested
in understanding who is frequenting family planning clinics,
and possibly in comparing them with users of another type of
service, such as community-based distributors. Likewise,
marketers may be interested in assessing the characteristics
and behaviour of people frequenting specific venues, so that
they can more effectively target these groups. They may also
be interested in identifying the characteristics of the users of
various types of condom brands to help them design appro-
priate advertising campaigns. In these cases, exit surveys are
often preferable. While similar information on a profile of
consumers could be obtained from population-based surveys,
doing so is often not feasible because it tends to require very
large sample sizes, which can be prohibitively expensive.

Endnote
1 Examples of a detailed exit survey questionnaire are available
upon request from the author.

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