

Equity in access to condoms in urban Zambia

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Objective: This article examines the degree of equity in access to condoms in urban Zambia.

Methodology: This study uses data from representative samples of a) men and women in households in urban Zambia and b) providers at retail outlets in urban Zambia.

Results: A substantial proportion of outlets in urban Zambia (39%) stocked social marketing condoms in 1999. More than 30% of groceries and kiosks – outlets commonly found in low-income residential areas – stocked social marketing condoms. Consumer access to condoms (defined as estimated walking time to a condom source) was greater for poorer compared to wealthier respondents: compared to men with 7–13 assets (wealthier men), men with 2–6 assets were 1.5 times as likely and men with up to one asset were 1.8 times as likely to be within 10 minutes walk of a condom source. Multivariate analysis indicated that greater access to condoms among the poor was a function of greater condom availability in poorer neighbourhoods.

Conclusions: Making condoms available in non-traditional outlet types that are commonly found in low-income areas (such as kiosks and groceries) can eliminate socioeconomic inequities in condom access.

Key words: equity, access, condoms, HIV, Africa, social marketing

Introduction

The HIV/AIDS epidemic poses a serious challenge to future socioeconomic gains in Zambia. Estimates indicate that 19% of Zambian men and women of reproductive age have been infected by the HIV virus. The level of HIV prevalence is higher in urban (27%) compared with rural areas (13%) (UNAIDS 2002).

Consistent condom use is an effective strategy for the prevention of HIV transmission (Pinkerton and Abramson 1997). However, the availability of and access to condoms can be important constraints to condom use (Harvey 1994; World Bank 1997; Levin et al. 1999; Agha 2000). Studies have shown that easy access to condoms is associated with and can lead to higher levels of protected sex (Chamrathirong et al. 1999; Egger et al. 2000). In many parts of sub-Saharan Africa access to condoms has been low (Manning 2000), particularly in remote areas and in non-health outlets (Gilmour et al. 2000). Until the late 1980s, the very limited availability of condoms was an important constraint on condom use in Zambia (Kapumba et al. 1991). Condoms such as the well-known Durex brand were available at commercial prices in pharmacies. However, in urban Zambia, pharmacies are generally at a distance from low-income neighbourhoods and the high prices of commercially supplied condoms sold in pharmacies often put them out of reach of poor people. Hence there were considerable differences by socioeconomic status in access to condoms.

To reduce barriers to condom access, a condom social marketing programme was initiated in Zambia at the end of 1992 and donor-subsidized condoms were made available through the Zambian commercial sector. These condoms

were available in the market for one-tenth of the price of commercial condoms. In particular, the intervention focused on making condoms available in 'non-traditional' outlets such as kiosks and groceries where condoms were previously not sold. Many non-traditional outlets were located in low-income neighbourhoods. Moreover, non-traditional outlets were far more numerous than 'traditional' outlets (such as pharmacies, clinics/hospitals). Hence, the strategy appears ideal for reducing socioeconomic inequities in access to condoms. In addition, donor-supplied condoms were made available through government primary health care centres and hospitals for no charge.

This study evaluates the extent to which the inequity in condom access in urban Zambia has persisted, if at all, despite the existence of a mature social marketing programme. We first examine the level of availability of condoms in urban Zambia. This is followed by an analysis of sources of condoms among different socioeconomic groups and individual motivations for obtaining condoms from these sources. Finally, we examine the extent to which any inequities in condom access result from differences in household wealth, versus differences in neighbourhood type. We discuss the contribution and role of the condom social marketing programme in reducing inequities in condom access in urban Zambia.

Background

Poverty in Zambia

Poverty levels have increased in Zambia during recent years: 73% of the Zambian population was poor in 1998 compared with 69% in 1996 (Central Statistical Office 1997b, 1999). The

vast majority of Zambians do not have sufficient income to purchase basic necessities, including adequate food. About 27% of urban residents live in settlements that are not legally recognized by the government (Ministry of Finance and Economic Development 1999). Illegal settlements lack access to services normally available in the planned segments of a city. For example, hospitals, private clinics and pharmacies are usually located in planned areas. In legalized low-income settlements, government primary health clinics are the main source of health care. Overall, access to health and family planning services is fairly limited in low-income urban areas in Zambia.

Contraceptive use and source of supply

The social marketing intervention, which is implemented by the Society for Family Health (SFH), was designed to increase access to condoms among the poor. One of the key objectives of the project was to lower the barriers to condom access faced by poor people by making subsidized condoms available in low-income neighbourhoods.

Data on condom use among men is not available from national demographic surveys conducted during the period 1992 to 1996. However, these surveys show that condom use among women aged 15–49 increased substantially from mid 1992 (6 months prior to the start of the condom social marketing intervention) to mid 1996 (approximately 3½ years after the start of the social marketing intervention): current use of condoms for family planning nearly doubled from 1.8 to 3.5%. The increase in condom use at the national level was due to individuals obtaining a larger number of condoms from shops and government health facilities: by 1996, 33% of current condom users reported obtaining condoms from shops, up from 16% in 1992. The number of condoms that current users obtained from government health facilities also increased between 1992 and 1996, although the proportion procured from government outlets remained stable at about 40% (Central Statistical Office 1993, 1997a). Because government health facilities are a considerably more important source of condoms in rural rather than urban areas (Kusanthan and Suzuki 2000), these national figures underestimate the contribution of shops and other non-traditional outlets to higher condom availability in urban areas.

Methods

Data

We use data from two surveys implemented in urban Zambia: a retail outlet survey on contraceptive availability and a household survey on sexual behaviour and condom use. The Survey on Social Marketing Contraceptive Availability in Urban Zambia 1999 (SSMCA-99) was based on interviews with providers at 2486 randomly selected 'traditional' and 'non-traditional' outlets in all nine provinces of Zambia. The survey was conducted by the SFH with assistance from the Central Statistical Office of Zambia (CSO) in sampling. The allocation of the sample across provinces was based on the number of registered businesses in each province. Each province was stratified into towns over 100 000 population

and towns below 100 000. Within towns, neighbourhoods were stratified into residential and commercial, and random selection of neighbourhoods was conducted within each stratum. Because no complete list of outlets of interest for this study existed in Zambia, interview teams went through each sample neighbourhood to estimate the number of outlets in that neighbourhood. The sampling interval was then determined, by dividing the estimated number of eligible outlets by the required number of outlets. Within a neighbourhood, each outlet of interest had an equal probability of selection. The outlet refusal rate was under 1%. For a more detailed description of the sampling see Emanuel et al. (2000).

Traditional outlets include pharmacies, drug stores, public clinics and private clinics. Non-traditional outlets include groceries, supermarkets, kiosks, boutiques, salon/barber shops, health and beauty retail stores, hotel/motels, bars/clubs and petrol pump stores. Wholesale outlets were also included in the sample. The eligibility criterion for outlets such as retailers, wholesalers, barbershops, salons, kiosks and boutiques was that they stock health and beauty products (such as soap, shampoo etc.). Outlets were eligible regardless of whether they actually stocked any contraceptives at the time of the survey. The questionnaire of the SSMCA-99 included questions on the types and brands of contraceptives that were stocked by outlets. The type of outlet where the interview was conducted was recorded in the questionnaire (Emanuel et al. 2000).

The Zambia Urban Sexual Behaviour and Condom Use Survey 1999 (ZSBCU-99) was a representative household survey of men and women aged 15–49 years living in urban Zambia. The survey was implemented by SFH and the sample was drawn by the CSO. A three-stage stratified cluster sampling procedure was used to select 2791 households from which one male or one female aged 15–49 years was interviewed. All nine provinces of Zambia were included in the sample. In the first stage of sampling, a stratified sample design was used to select towns. Standard Enumeration Areas (SEAs) were selected in the second stage and households were selected in the third stage. About 280 SEAs were selected for the study with probability proportional to size. The measure of size used was the household count in each SEA. The sampling interval for the SEAs was calculated by dividing the total number of households in each town by the number of SEAs to be selected. Within an SEA, 10 households were systematically selected after a random start. The refusal rate was about 1%. Data were weighted to adjust for the different probabilities of selection. The questionnaire of the ZSBCU-99 included questions on social and demographic characteristics of respondents, their distance from a source of condoms and their last source of condoms.

Measures and methods

We use data from the SSMCA-99 retail outlet survey to examine the level of availability of condoms in different outlets in urban Zambia. Specifically, we calculate the percentage of outlets that stock government-supplied condoms, commercial brand condoms, and social marketing

condoms. We distinguish between different outlet types because people living in poor areas generally have better access to non-traditional outlets such as kiosks and groceries, than to traditional outlets such as pharmacies.

For the ZSBCU-99 household survey, we used estimated travel time to a condom source to measure geographic access to condoms. Individual respondents in the ZSBCU-99 were first asked whether they knew a place to obtain condoms. About 82% of all respondents reported that they knew a condom source. Those who knew a condom source were asked: "How long would it take you to walk to this place?" Although accessibility has many dimensions, estimated travel time to a source is a commonly used indicator of contraceptive access (Chayovan et al. 1984). About 62% of all respondents (and 69% of male respondents) in the sample reported that they lived within 10 minutes walk of a condom source. Since males rather than females usually obtain condoms in Zambia (Agha 1997, 1998), we restrict our analysis of the household survey data to men. There were 1324 men in the sample. After removing 37 cases with missing data, this left 1287 men.

To assess inequities in access, we constructed an index of assets as a proxy for household wealth. Because income is extremely difficult to measure in surveys, the use of amenities and assets to measure wealth is a common practice in demographic surveys (Kishor and Neitzel 1996). Our variable was created using a simple count of the number of household assets and amenities. These assets include television, radio, bicycle, motorcycle, car, video player, refrigerator, and ownership of a farm, house and services/amenities such as telephone, electricity, piped water and flush latrine. Those with fewer assets are considered poorer than those with more assets.

At the multivariate level, logistic regression analysis was used to determine differences in access to condoms by wealth and other variables. Differences are considered to be statistically significant at $p < 0.05$.

Results

Socioeconomic status

Figure 1 shows the socioeconomic status (measured in terms of ownership of assets) of residents of low, medium and high-income neighbourhoods of urban Zambia. About 24% of residents of low-income urban areas ($n = 880$) own up to one asset, compared with 5% of residents of high-income areas ($n = 154$). The majority (63%) of residents of low-income urban areas own 2–6 assets. Only 12% of residents of low-income areas own 7–13 assets, while 58% of residents of high-income urban areas own 7–13 assets.

Availability of condoms

Because groceries and kiosks are commonly found in low-income urban neighbourhoods (where the majority of the urban population lives), distributing condoms through groceries and kiosks is particularly important for an intervention that plans to increase geographic availability of condoms. Table 1 shows the distribution of outlet types in urban Zambia. Groceries (33%), kiosks (28%) and bars (11%) are the most common outlet types in urban Zambia.

The SSMCA-99 retail outlet survey asked providers whether they stocked different types/brands of contraceptives. The percentage of traditional and non-traditional outlets that currently stock government supplied, commercially supplied and social marketing supplied condoms are also shown in Table 1.

Government supplied condoms

About 3% of outlets carry the unbranded male condom donated to the Government of Zambia (GRZ) by international donors (Table 1). These unbranded male condoms are available in 76% of the public clinics, 15% of private clinics and 13% of hotels, but in very few other outlets. The availability of government condoms in groceries, kiosks and bars is negligible.

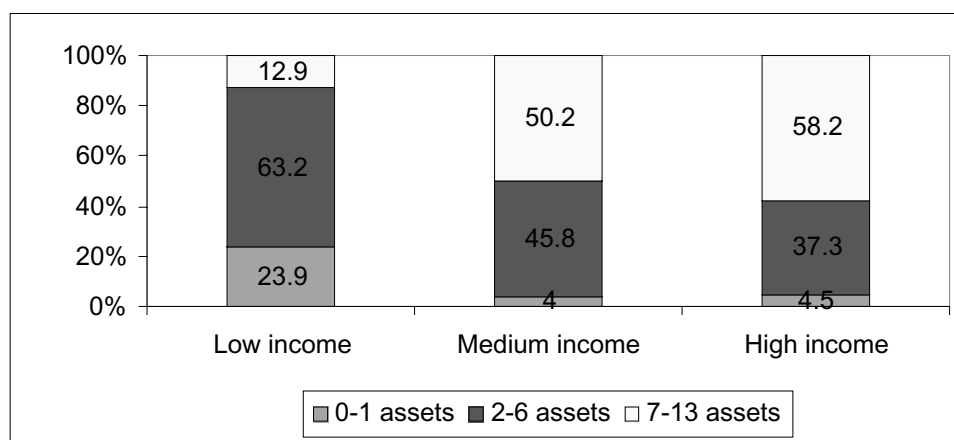


Figure 1. Ownership of assets by residents of low, medium and high income urban areas in Zambia

Table 1. Percentage distribution of contraceptive outlets in the SSMCA-99 retail outlet survey and percentage of outlets that currently stock different types of male condoms

Outlet type	% distribution of outlets	% of outlets that currently stock condoms supplied through various sources		
		Government	Commercial	Social marketing
<i>Non-traditional outlets</i>				
Grocery	33.4	1.4	0.4	37.4
Kiosk	28.4	0.6	0.0	30.4
Supermarket	2.9	1.4	5.6	63.4
Boutique	1.7	0.0	0.0	2.3
Salon/barber	3.4	0.0	0.0	1.2
Retail store	1.9	2.2	0.0	41.3
Hotel/motel	2.2	13.0	0.0	51.9
Bar/club	11.4	2.8	0.7	48.9
Wholesaler	2.7	0.0	1.5	42.6
Petrol pump store	1.1	0.0	7.4	44.4
<i>Traditional outlets</i>				
Pharmacy	1.9	2.2	50.0	89.1
Drug store	5.2	2.3	13.2	82.9
Public clinic	2.0	76.0	2.0	14.0
Private clinic	1.9	15.2	2.2	26.1
Total	100.0	3.3	2.2	38.9

Commercially supplied condoms

About 2% of all outlets stock one or more commercially supplied condom brand. Pharmacies (50%) and drug stores (13%) are the outlets most likely to carry commercial brands. Again, there is virtually no availability of commercially supplied condoms in groceries, kiosks or bars.

Social marketing supplied condoms

About 39% of all outlets currently carry the social marketing supplied male condom, *MAXIMUM*. A substantial proportion of groceries (37%), kiosks (30%) and bars (49%) carry the social marketing male condom. *MAXIMUM* is also available in the majority of pharmacies (89%), drug stores (83%) and supermarkets (63%), in about half of hotels (52%) and in a substantial proportion of petrol pump stores (44%) and retail stores (41%).

Sources of condoms and reasons for using last source

In the ZSBCU-99 household survey, condom users were asked where they obtained condoms the last time and their reasons for procuring condoms from that source. We examined the percentage of condom users who obtained condoms from each source by respondents' socioeconomic backgrounds (not shown). Among the poorest respondents (those with up to one asset), the most common source of condoms was groceries: 40% of respondents with up to one asset compared with 26% of respondents with seven or more assets obtained condoms from a grocery. The wealthiest respondents were more likely than poorer respondents to have obtained condoms from pharmacies: about 24% of respondents with seven or more household assets compared with 10% of respondents with up to one household asset procured their last condoms from a pharmacy. Kiosks were another important source of condoms for poor respondents:

10% of the poorest respondents obtained condoms from kiosks compared with about 2% of the wealthiest respondents.

Ever users of condoms who had obtained condoms themselves were asked about their reasons for obtaining condoms from their last source. We examined their reasons for obtaining condoms by their socioeconomic characteristics (not shown). The most important reason for choice of condom source for the poorest respondents was access: about 63% of the poorest respondents reported access as the main reason for obtaining condoms from their last source (27% reported proximity to home, 30% reported easy availability, 4% reported proximity to work and 2% reported availability of condoms at night). The wealthiest respondents gave two main reasons for their choice of condom source: access (40%) and the price of condoms (39%).

Multivariate analysis: socioeconomic differentials in access to condoms

Table 2 shows the distribution of the male respondents in the household survey sample. About 38% of males were from Lusaka, 11% had more than secondary education, 26% had seven or more assets and 14% were from a high-income neighbourhood.

We now use logistic regression analysis to determine to what extent inequities in condom access are due to a person's wealth, as opposed to the neighbourhood in which they reside. The Logistic Regression Model 1 in Table 3 shows the odds of being within 10 minutes walk of a condom source. Model 1 includes residence, level of education and number of household assets.

The results show that residents of Lusaka had significantly better access to condoms than respondents living in other

Table 2. Distribution of male respondents

	No. of cases	%
<i>Residence</i>		
Other urban	880	61.8
Lusaka	407	38.2
<i>Level of education</i>		
Less than secondary	323	24.9
Any secondary	811	64.2
Greater than secondary	153	10.9
<i>Number of assets</i>		
7–13	290	25.8
2–6	747	56.6
0–1	250	17.6
<i>Neighbourhood type</i>		
Low income	880	68.4
Medium income	253	17.7
High income	154	13.9
Total	1287	100.0

urban areas, even after controlling for differences in level of education and number assets: Lusaka residents are 1.7 times as likely as men from other urban areas to be within 10 minutes walk of a condom source. Any secondary education was also associated with significantly higher access to condoms: men with any secondary education were 1.5 times as likely to report being within 10 minutes walk of a condom source. Unexpectedly, there was an inverse relationship between wealth and access to condoms. Less wealthy men had greater access to condoms: males with 2–6 assets were 1.5 times as likely to report being within 10 minutes walk of a condom source compared with males with 7–13 assets; males with 0–1 assets were 1.8 times as likely as those with 7–13 assets to report being with 10 minutes walk of a source.

Table 3. Odds ratios and 95% confidence intervals from logistic regression analyses showing the likelihood of a man being within 10 minutes walk of a condom source

	Model 1 Residence, education and assets		Model 2 PLUS neighbourhood type		No. of cases (n = 1287)
	OR	95% CI	OR	95% CI	
<i>Residence</i>					
Other urban	1.00	1.00			880
Lusaka	1.74	1.35, 2.25	1.71	1.32, 2.21	407
<i>Level of education</i>					
Less than secondary	1.00		1.00		323
Any secondary	1.48	1.10, 1.98	1.53	1.14, 2.05	811
Greater than secondary	1.57	0.99, 2.50	1.97	1.22, 3.19	153
<i>Number of assets</i>					
7–13	1.00		1.00		290
2–6	1.50	1.12, 2.00	1.29	0.95, 1.77	747
0–1	1.82	1.21, 2.73	1.54	0.99, 2.37	250
<i>Neighbourhood type</i>					
Low income			1.00		880
Medium income			1.03	0.73, 1.47	253
High income			0.43	0.30, 0.63	154
Chi-square of model fit	34.81**		22.22**		–

* p < 0.05; ** p < 0.01.

We hypothesize that this comparatively high access to condoms among the poor stems from the availability of condoms in outlets found in low-income areas (such as kiosks and groceries). To test this, we added a control for neighbourhood type in the Logistic Regression Model 2. If our hypothesis is correct, then the statistically significant relationship between wealth and access to condoms should diminish after controlling for neighbourhood type.

The results presented in Table 3 confirm that after controlling for neighbourhood type (Model 2), there is no statistically significant association between household wealth and access to condoms. There is, however, a significant association between neighbourhood type and access to condoms: males in high-income neighbourhoods were 0.4 times as likely as males in low-income neighbourhoods to report being within 10 minutes of a condom source.

In other words, these findings indicate that poor people have greater access to condoms, because they tend to reside in neighbourhoods where access is high. These findings imply that the strategy of increasing condom availability to outlets in low-income urban areas of Zambia has had a significant impact on improving condom availability among the urban poor.

These findings suggest that education and wealth have independent effects on access to condoms. Poorer people's access to condoms appears to be influenced by the actual presence of condom outlets in their neighbourhoods: after controlling for neighbourhood type, there is no significant wealth-based difference in access to condoms. However, after controlling for wealth, education has a positive association with access to condoms. Educated people are more likely to have formal sector employment and, because businesses are usually in

more central urban areas, access to condoms for more educated men may be less dependent on the neighbourhoods they live in.

Discussion and conclusions

This paper has assessed the degree to which there is equity in access to condoms in urban Zambia by using information from two independent sources, a survey of retail outlets and a household survey. Data from the retail outlet survey indicate that the availability of condoms is high in urban Zambia, primarily due to the high availability of social marketing condoms. About 39% of all outlets in urban Zambia stock social marketing condoms. More than 30% of two outlet types that are commonly found in low-income urban areas – groceries and kiosks – also stock social marketing condoms. About half of the poorest respondents obtain condoms from groceries and kiosks, compared with less than one-third of the wealthiest respondents. The availability of condoms in groceries and kiosks appears to have resulted in highly equitable condom access. These findings are corroborated by information from the household survey, which shows that access to condoms was in fact significantly greater for the poor than for the wealthy. Compared to those with 7–13 assets (the wealthy), those with 2–6 assets are 1.5 times as likely to be within 10 minutes walk of a condom source and those with 0–1 assets are 1.8 times as likely to be within 10 minutes walk of a source.

Travel time to a condom source can be expected to be a much more important determinant of obtaining condoms for the poor than for the wealthy. The poor have limited resources and obtaining condoms from a distant source may require significant travel costs. The data confirm that the wealthiest respondents were more likely than the poorest to give price as a reason for choice of condom source. For poor Zambians, a choice between different condom brands may simply not be available because the outlets that are nearest to them usually stock only the subsidized social marketed condom brand (see Table 1).

These findings are consistent with those of a recent study of the effect of price and access on contraceptive use in Bangladesh. This study found that distance from a contraceptive source had a significant impact on choice of provider, with the relationship being stronger for poorer clients. Clients were less likely to choose methods that were less accessible because of the cost of travel associated with greater distance (Levin et al. 1999). These findings are also consistent with previous research indicating that, as they mature, social marketing interventions tend to reduce inequities in access to products and services (Stallworthy 1998).

The poor are vulnerable to HIV/AIDS in part because of their lack of access to services (Price 2001). The issue of equity in access to HIV/AIDS information and services, and how such factors affect the ability of the poor to protect themselves against infection, have not been systematically investigated in developing country settings. This issue becomes particularly important during later stages of an

epidemic. In the early stages of an HIV/AIDS epidemic, the wealthy are extremely vulnerable to HIV infection because of their high-risk behaviour. As the epidemic matures and wealthier groups change their behaviour, the poor are at higher risk of infection (Agha 2002). It becomes particularly important in such instances to target the poor with information and services in order to lower the rate of HIV infection in the population.

Our analysis suggests that an intervention able to make condoms widely available through outlets found in low-income urban areas can make a substantial impact in bringing condoms within reach of the urban poor. In many poor countries, access to condoms for the poor is limited because they live on the urban periphery, where traditional outlets such as pharmacies are scarce. Government health clinics are an important source of condoms but they are relatively few in number, especially compared with the more common non-traditional outlets found in urban areas. Since the costs of travel associated with obtaining condoms from an outlet in a more distant central urban area can be an important constraint to obtaining condoms, it is important to make condoms available in non-traditional outlets commonly found in low-income areas.

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