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Extended abstract**

The power of access – the extent and role of condom physical, financial and social accessibility in determining condom use - Kilifi, Kenya

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Background and Objectives:

If condoms are to act as an effective public health tool, basic preconditions of availability, affordability and accessibility must be met. Using Kilifi district, Kenya as a case study, this research investigates the extent and role of physical, financial and social factors in determining condom access and use across a rural and an urban site; the predictive value of condom access on use is also measured. The research aims to have practical applications for condom promotion efforts at the community, district and national levels.

Setting

In Kenya, HIV prevalence is estimated at 7.8% among adults 15-49 years old, 10% of monogamous couples (and 14% of polygamous couples) are living with HIV with one or more partners infected, 64% of the population has not been tested for HIV, and 83% of HIV-infected people do not know their correct HIV status [1]. Despite more than a decade of condom promotion efforts, less than 50% report using a condom at last sex with a casual partner, and less than 5% report using condoms with a spouse or cohabiting partner [2]. For the period 2000-2004, the public sector provision of condoms in Kenya was estimated at 16.2 condoms per male aged 15-49 [3]. In Kilifi district (Coast Province, Kenya), HIV prevalence is estimated at 5% (Kilifi District Hospital, women attending antenatal care, 2005) [4]. Kilifi district is predominantly rural, women marry early, polygamy is practised, fertility is high and education levels are low; it is one of the poorest districts in Kenya [5].

Methods

Within the Demographic Surveillance System (DSS) in Kilifi district, two sites were selected: Kilifi Town (urban) and Sokoke (rural). Within each site: (i) All potential condom outlets (n=281) were mapped and surveyed: health facilities, shops/kiosks, chemists and entertainment spots (bars/discos/guesthouses). Garmin ETrex (12 channel GPS) was used to collect coordinates; ArcMap 9.2 was used for analysing the physical data. (ii) Questionnaires (n=630; 322 Kilifi Town/308 Sokoke) were conducted at the household-level among a random sample of the population, 15-49 years old, male and female. The random sample was computer-generated from the DSS database. Double data entry was carried out using FoxPro 6.0, and data were analysed using STATA 9.

Results

Condoms were more readily available in the urban than the rural site. This was expressed across a variety of measures, including number and type of outlets providing condoms, density of condom outlets, and distance and time from households to the nearest condom outlet, both for free and commercial condoms (table 1). The mean distance and reported time to the nearest condom outlet was shorter for commercial than free condoms.

Table 1: Physical availability of condoms in Kilifi Town and Sokoke

	Kilifi Town (Urban)	Sokoke (Rural)
Outlets <i>usually</i> providing condoms / number of potential outlets	107/248 (43%)	12/33 (36%)
Outlets temporarily out-of-stock / outlets usually providing condoms	22/107 (19%)	1/12 (8%)
Type of outlets providing condoms		
Shops	65/191	9/30
Entertainment spots (bars, discos, guesthouses)	25/35	0/0
Health facilities	8/12	3/3 (located outside site boundaries)
Chemists	9/10	0/0
Density of condom outlets (outlets/km ²)		
- outlets / km ²	107 outlets / 9 km ² = 11.9	12 outlets / 62 km ² = 0.2
[versus population density]	[2,812 residents / km ²]	[136 residents / km ²]
Median distance (straight-line) from respondents' household to nearest condom outlet (km)		
- free condoms (95% CI)	0.39 (0.35-0.43)	4.27 (4.09-4.46)
- commercial condoms (95% CI)	0.17 (0.15-0.18)	1.27 (1.17-1.37)
Mean amount of reported time (min) to nearest condom outlet (95% CI)		
- health facility (free condom)	30 (28-32)	83 (78-88)
- shop (commercial condom)	7 (6-8)	13 (11-14)

The main commercial condom available was “Trust,” socially marketed by Population Services International. Female condoms were largely unavailable in both sites; all results therefore refer to male condoms.

Among individuals who had ever engaged in sex (n=459), 48% had ever used a condom in Kilifi Town, versus 34% in Sokoke (p=0.002) (not shown). Table 2 identifies the variables associated with condom use (univariate analyses). Respondents who were male, 15-24 years old, had received an education beyond primary level, had engaged in higher-risk sex (i.e. sex with a non-marital/non-cohabiting partner), and had ever been given a condom or shown how to use a condom, were more likely to have ever used a condom (p<0.05).

Table 2: Socio-demographic and sexual behaviour indicators associated with condom ever use (crude odds ratios), among individuals who ever engaged in sex (n=459)

Crude Odds Ratio for condom ever use (95% CI)	Kilifi Town	Sokoke	Total
Basic socio-demographics			
Gender (male versus female)	4.0 (2.3-6.9)	4.5 (2.3-8.8)	4.3 (2.8-6.6)
Age (15-24 yrs versus 25-49 yrs)	1.6 (0.9-2.9)	2.6 (1.4-4.8)	1.9 (1.2-2.8)
Tribe (Giriama versus other)	1.2 (0.7-2.1)	1.3 (0.6-2.8)	0.9 (0.6-1.3)
Religion (Has religion versus no religion)	0.8 (0.4-1.6)	0.8 (0.4-1.4)	1.1 (0.7-1.6)
Religion type (Muslim, Christian, other)	1.0 (1.0-1.0)	1.0 (1.0-1.0)	1.0 (1.0-1.0)
Education (>primary versus <primary)	2.5 (1.5-4.3)	3.4 (1.5-7.5)	3.1 (2.0-4.7)
Employment (employed versus not employed)	1.2 (0.7-2.0)	0.7 (0.3-2.0)	0.9 (0.6-1.4)
Household measure (“better than basic” versus “basic”) ¹ (proxy for poverty level)	0.9 (0.5-1.5)	3.7 (0.8-16.3)	1.4 (0.9-2.2)
Marital status (never married versus ever married)	4.1 (2.2-7.7)	5.1 (2.6-10.0)	4.2 (2.7-6.5)
Sexual behaviour:			
HIV test (ever tested versus never tested)	0.9 (0.5-1.4)	0.6 (0.3-1.1)	0.8 (0.6-1.2)
“Higher-risk” sex (sex with non-marital/non-cohabiting partner versus sex with marital/cohabiting partner)	5.1 (2.7-9.3)	7.9 (3.0-20.8)	5.1 (3.2-8.4)
Exposure to condoms or related information			
Ever given a condom	4.2 (2.2-8.0)	7.6 (3.5-16.5)	5.4 (3.3-8.8)
Ever shown how to use a condom	2.5 (1.4-4.3)	1.8 (1.0-3.2)	2.1 (1.4-3.0)
Ever attended awareness event on HIV prevention	1.5 (0.9-2.5)	1.1 (0.6-2.0)	1.3 (0.9-1.9)

¹ “Basic” was defined as having no running water and no electricity, and with house-walls made of non-permanent materials. “More than basic” was defined as having house-walls made of permanent materials, and one or both of running water and electricity.

Table 3 identifies differences in prevalence for the indicators associated with condom use, using a significance level of p<0.100. Kilifi Town and Sokoke respondents differed in terms of gender, age, education level and proportion of individuals engaging in higher-risk

sex ($p < 0.100$). These factors were later controlled for in the logistic regression measuring the effect of physical/financial and social barriers on condom ever use (see table 5).

Table 3: Prevalence of variables associated with condom use in Kilifi Town and Sokoke, among individuals who ever engaged in sex

% (n)	Total	Kilifi Town	Sokoke	p
Gender (% male)	48 (221/459)	53 (133/253)	43 (88/206)	0.036
Age (% 15-24)	31 (144/459)	28 (70/253)	36 (74/206)	0.058
Education (% beyond primary)	29 (133/459)	40 (102/253)	15 (31/206)	0.000
Marital status (% never married)	30 (139/459)	28 (72/253)	33 (67/206)	0.346
Higher-risk sex (% ever engaged in sex with non-marital/non-cohabiting partner)	64 (292/453)	61 (152/249)	69 (140/204)	0.093
% Ever given a condom	26 (120/458)	28 (70/253)	24 (50/205)	0.428
% Ever shown how to use a condom	38 (175/458)	37 (93/253)	40 (82/205)	0.478

Table 4 indicates the prevalence of physical/financial and social barriers in Kilifi Town and Sokoke, and their effect on condom use. At the univariate level (i.e. based on crude odds ratios), all indicators, except for influence of religion, had an effect on condom use. Physical/financial barriers included distance (living ≥ 1 km away from free or commercial condom) and affordability (being able to afford 10 Ksh or 0.15 USD to purchase a pack of “Trust”). Social barriers included embarrassment at getting a condom, difficulty asking one’s partner to use a condom, negative/ambivalent attitude towards condoms, and having never been given a condom or shown how to use a condom.

Sokoke respondents had higher physical/financial barriers to condom access than Kilifi Town respondents ($p=0.000$). Based on the composite measure for “no physical/financial barriers,” 99% of Kilifi Town respondents had no physical/financial barriers to condom access versus 39% of Sokoke respondents ($p=0.000$).

With respect to social barriers significantly associated with condom use, similar proportions of Kilifi Town and Sokoke respondents reported embarrassment at obtaining condoms, negative/ambivalent attitudes towards condoms and low product exposure. With respect to ease/difficulty asking one’s partner to use a condom, a higher proportion of Kilifi Town versus Sokoke respondents reported it would be difficult ($p=0.003$). Based on the composite measure for “no social barriers,” 26% of respondents experienced no social

barriers to condom access and use, with no significant differences across location

($p=0.086$).

Table 4: Prevalence and crude odds ratios for condom use of physical/financial and social barriers

Among sexually active individuals (n=459)	Prevalence of barriers, % (n)			p	Crude odds ratio of <i>absence</i> of barrier on condom use
	Total	Kilifi Town	Sokoke		
Physical and financial barriers					
% living \geq 1 km from nearest free condom	49 (226/459)	9 (24/253)	98 (202/206)	0.000	1.9 (1.3-2.7)
% living \geq 1 km from nearest commercial condom	21 (96/459)	0 (0/253)	47 (96/206)	0.000	2.1 (1.3-3.5)
% cannot afford commercial condoms as a one-off purchase, i.e. 10 Ksh, or 0.15 USD per pack of "Trust")	15 (70/457)	7 (17/253)	26 (53/204)	0.000	4.1 (2.1-8.0)
"NO PHYSICAL/FINANCIAL BARRIER" (% can afford at shop <1 km away or distance to health facility \leq 1 km)	72 (330/457)	99 (250/253)	39 (80/204)	0.000	2.6 (1.6-4.1)
Social barriers					
Embarrassment (% embarrassed to get a condom)	41 (187/454)	39 (98/251)	44 (89/203)	0.302	2.6 (1.7-4.0)
Asking partner (% having difficulty asking partner)	25 (111/452)	30 (75/250)	18 (36/202)	0.003	5.6 (3.1-10.1)
Condom attitude (% with negative/ambivalent attitude towards condoms)	36 (164/451)	33 (83/249)	40 (81/202)	0.137	4.1 (2.6-6.4)
Influence of religion (% who report that their condom attitude is influenced by their religion)	39 (178/454)	59 (147/250)	15 (31/204)	0.000	1.0 (0.96-1.00)
Product exposure (% never given or shown how to use a condom)	50 (230/458)	51 (129/253)	49 (101/205)	0.714	3.5 (2.3-5.3)
"NO SOCIAL BARRIERS" (% no embarrassment, no difficulty asking partner, no negative attitude, and with previous exposure to product)	26 (113/439)	23 (55/244)	30 (58/195)	0.086	5.1 (3.1-8.4)

Controlling for the socio-demographic differences between Kilifi Town and Sokoke in terms of gender, age, education and higher-risk sex (as identified in table 3), the *adjusted* odds ratio for condom ever use was 2.2 (95% CI: 1.3-3.8) with "no physical/financial barriers," and 3.9 (95%CI: 2.3-6.6) with "no social barriers" to access (table 5). The adjusted odds ratios for gender, age, education and higher-risk sex remained significant.

Table 5: Adjusted odds ratios of "no physical/financial barriers" and "no social barriers" on condom use, controlling for gender, age, education and higher-risk sex

Adjusted OR for ever use, among sexually active, n=459 (95% CI)	Total
No physical/financial barriers versus one or more barriers	2.2 (1.3-3.8)
No social barriers versus one or more barriers	3.9 (2.3-6.6)
Male versus female	2.5 (1.6-4.0)
15-24 versus 25-49 years old	1.8 (1.1-3.0)
>primary versus <primary school education	2.2 (1.3-3.6)
Ever engaged in higher-risk sex versus never engaged in higher-risk sex	3.6 (2.1-6.1)

The predictive value of measures of individuals' perception of condom access and condom uptake behaviours was investigated. These included perception of ease/difficulty accessing condoms, past procurement behaviour, and preparatory behaviours denoting ability to access and intention to use condoms. The results point to the significant and high predictive values of these variables in determining condom use (table 6).

Table 6: Prevalence (%) and crude odds ratios of various measures denoting ability to access and intention to use condoms

Among sexually active individuals	Total	Kilifi Town	Soko	p	Crude odds ratio for condom ever use
Reporting that accessing a condom would be easy	74 (338/459)	86 (217/253)	59 (121/206)	0.000	4.2 (2.1-8.6)
Have ever gone to get a condom	34 (156/456)	41 (104/253)	26 (52/203)	0.001	66.3 (24.5-179.3)
Keep condoms at home	14 (62/453)	13 (33/248)	14 (29/205)	0.796	39.0 (11.6-144.2)
Take condoms with them when going out	8 (35/453)	8 (19/248)	8 (16/205)	0.955	17.6 (5.0-61.6)

Conclusions

Factors influencing individuals' ability to access condoms, physically, financially and socially, played a key role in predicting condom use. These included distance, cost, embarrassment at getting condoms, difficulty asking one's partner to use condoms, attitude towards condoms, and product exposure. The results offer encouraging insights on the power of physical/financial and social access in determining condom use. Individuals with no physical/financial barriers to condom access were 2.2-times (95% CI: 1.3-3.8) more likely to have ever used a condom, and individuals with no social barriers to condom access and use were 3.9-times (95% CI: 2.3-6.6) more likely to have ever used a condom. The highly predictive value of preparatory behaviours, such as going to get a condom and keeping condoms at home or taking them with oneself when going out, offer possible intermediate objectives for a more "step-wise" approach to condom promotion efforts aimed at addressing both the social and logistical factors determining condom access and use.

References

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