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CLINICAL ARTICLE

Male partner involvement in reducing loss to follow-up after cervical cancer screening in Uganda

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ABSTRACT

Objective: To evaluate the efficacy of male partner involvement in reducing loss to follow-up among women in Uganda referred for colposcopy after a positive cervical cancer-screening test. *Methods:* In 2 family-planning/postnatal clinics at Mulago Hospital, Kampala, Uganda, 5094 women were screened for cervical lesions. Those who screened positive were referred for colposcopy; half were allocated to the intervention group and half to the control group. In the intervention group, information about the screening findings and a request to assist their partner in attending the next examination were sent to male partners. In the control group, a standard service was provided, which did not include a letter to the male partner. Logistic regression models were applied to calculate the probability of women returning for colposcopy. *Results:* Of the 834 women referred, 209 (25%) did not return for colposcopy: 143/419 (34%) from the control group and 66/415 (16%) from the intervention group. Women in the intervention group were more likely to return (odds ratio 2.8; 95% confidence interval, 1.9–3.9). *Conclusion:* Male partner involvement significantly reduced loss to follow-up among women referred for colposcopy.

1. Introduction

Cervical cancer is the second most common cancer among women worldwide, with 452 000 new cases per year [1]. It is the most common cancer affecting women in Uganda, with an estimated age-standardized incidence rate of 40.7 per 100 000 females [2]. In Sub-Saharan Africa alone, 57 000 estimated new cases of cervical cancer occurred in 2000, comprising 22% of all cancers [1].

The use of visual inspection with acetic acid (VIA) and visual inspection with Lugol's iodine (VILI) is feasible as a primary means of screening for cervical cancer in low-resource settings [3–7]. In low-income countries, organized cytologic screening—which used to occur annually but now occurs every 3–5 years—has been successful in reducing the number of deaths from cervical cancer [8,9]. Owing to lack of resources and poor logistics, cytology-based programs are not feasible in low-resource settings. This has led to a shift toward see-and-treat strategies and it is advocated that, where resources are limited, screening for precancerous lesions should be attempted once or twice in a woman's life, between the ages of 30 and 50 years [10,11]. It has been shown that once-per-lifetime screening—using VIA—of women aged 35 years, followed by cryotherapy without colposcopic confirmation for women who screen positive, would reduce the incidence of cervical cancer by 26% and be less expensive overall than not screening. A single round of human papillomavirus testing would be extremely effective at reducing mortality from cervical cancer [12,13].

For a cervical cancer-screening program to be effective, uptake should be high and loss to follow-up should be minimal. Loss to follow-up after cervical cancer screening ranges from 10% to 70% in some low-income countries [14,15] and may be as high as 30%–50% in high-income countries [16].

Different strategies have been investigated in terms of reducing loss to follow-up after cervical cancer screening, including telephone call reminders; tracing by community health workers; personalized follow-up letters; economic incentives; and behavioral, cognitive, sociologic, and combined strategies [14–19].

Most interventions have targeted women. Uganda is a patriarchal society in which male partners hold significant power over decision making at home and over the health-seeking behavior of family members. A study of reproductive health services usage showed that men are willing to help but are rarely informed [20]. Some qualitative studies have indicated a role for men in screening programs for cervical cancer [21–23], although the impact of male partner involvement was

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not quantified. In Uganda, overall literacy levels for men are 89.8% in urban areas and 81.4% in rural areas. Levels are 81.0% in the central region of Uganda and 94.2% in Kampala [24].

The aim of the present study was to determine whether male partner involvement could reduce loss to follow-up among women in Uganda referred for colposcopy after screening positive for cervical cancer during visual inspection.

2. Materials and methods

An open interventional study with 2 treatment arms was conducted at Mulago Hospital, which is the national referral and teaching hospital of Uganda and the largest hospital in the country. It is 2 km from the city center of Kampala. Opportunistic cervical cancer screening was performed at 2 family-planning/postnatal clinics at the hospital. Most women who lived within a 10-km radius of the clinics would take minibuses to attend. Those who lived further away would take buses to the city center, then minibuses to the clinics.

The subsequent screening of referred women took place from February 2, 2007 to August 12, 2008. The study ended on November 30, 2008 because the final woman with a colposcopic diagnosis of cervical intraepithelial neoplasia (CIN) was followed-up for 3 months after treatment.

Group health education sessions were held at the clinics each morning regarding the services available. The sessions provided information about the extent of the problem of cervical cancer, causes and risk factors, symptoms, and treatment options. Attendees were taught about prevention of the disease, and those eligible were offered the screening test. The nurses had been intensively trained on using VIA/VILI for screening. Because the study aim was not to measure the specificity of the screening method, a low threshold for positivity was used, and nurses were instructed to err on the side of positive. Women who screened positive following VIA/VILI and who were living with a male partner in a stable relationship were eligible for the study.

Because Lugol's iodine takes 3–5 days to disappear from the cervix and because it obscures the visualization of cervical vasculature and acetowhitening, which are essential for colposcopic evaluation, women referred for colposcopy were told to return (between Monday and Friday) for the examination after at least 1 week.

Under control conditions (the standard service routine), women who screened positive at visual inspection were told the result and the implications; if the lesion seemed precancerous, they were assigned a date to return for colposcopy. The women were informed that further management would depend on the colposcopic findings.

The intervention was a letter addressed to the male partner, in addition to the standard routine. The women were told about the contents of the letter, which they were asked to deliver to their male partner; intention-to-treat analysis was used. The letter informed the male that his partner had a condition requiring further evaluation and requested that he offer her assistance in returning within the indicated period. A telephone number was included, which could be called for more information. The letter was written in English and Luganda, which is the major local language in the area where the study was conducted.

To minimize study contamination, letters were issued according to the week in which women were screened. This was alternated so that the number of weeks in which letters were issued was equal to the number in which letters were not issued.

The main outcome measure was whether women returned for colposcopy within the study period. The probability of returning for colposcopy was compared between the study arms by fitting logistic regression models calculating the odds ratio (OR) and the associated 2-sided 95% confidence interval (CI). In supplementary logistic regression models, we adjusted for women's age, income status, education, distance from clinic, male partner literacy (education), and male partner income status.

Women's age was divided into 6 categories: 20 years or younger; 21–30 years; 31–40 years; 41–50 years; 51–60 years; and 61–70 years. Income statuses for women and their male partners were categorized separately as high (large-scale trading; clerical work; and professional, technical, or managerial occupations) or low (not working, manual work, services, agriculture, and small-scale sales) depending on occupation. A similar method of categorization was used to create the income variables for women and their male partners. Distance was categorized as near (≤10 km from the clinics) or far (>10 km from the clinics). The χ^2 test was used to compare the data distribution of the baseline covariates between the 2 groups. STATA version 10 (StataCorp, College Station, TX, USA) was used for the data analyses.

The present study was approved by the Institutional Review Board of Makerere University Faculty of Medicine and the Uganda National Council for Science and Technology. Written informed consent was obtained from those eligible for recruitment into the study. It was explained to the eligible women that relevant care would be offered to all, regardless of participation in the study. Screening and treatment were free of charge; participants had to pay only for their transport costs.

3. Results

In the first 12 months of the study, 630 women were referred, with 204 referred subsequently. In total, 415 women were assigned to the intervention group and 419 to the control group. Women's age ranged from 17 to 70 years, with a mean of 34.6 years. Male partners' age ranged from 20 to 85 years, with a mean of 40.8 years. There were no statistically significant differences between the 2 groups in social demographic characteristics (Table 1) or colposcopy diagnosis ($P=0.900$). Among the women recruited into the study who screened positive and were referred for colposcopy, HIV prevalence was 16%—double that of the general population.

Table 1
Distribution of covariates in the intervention and control groups, and loss to follow-up.[a]

Covariate	Intervention group	Control group	Loss to follow-up, %
Age, y	$P=0.357$		$P=0.001$
≤20	21 (55.3)	17 (44.7)	39.5
21–30	156 (46.0)	183 (54.0)	30.9
31–40	130 (54.0)	111 (46.0)	22.8
41–50	67 (51.5)	63 (48.5)	14.6
51–60	37 (50.0)	37 (50.0)	16.2
61–70	4 (33.3)	8 (66.7)	25.0
Education	$P=0.228$		$P=0.005$
University/institution	112 (52.6)	101 (47.4)	17.4
Secondary	155 (50.8)	150 (49.2)	28.2
Primary	118 (44.9)	145 (55.1)	29.3
None	30 (56.6)	23 (43.4)	17.0
Income status	$P=0.079$		$P<0.001$
High	100 (55.6)	80 (44.4)	15.0
Low	315 (48.2)	339 (51.8)	27.8
Distance from clinics, km	$P=0.582$		$P=0.005$
≤10	297 (49.0)	307 (51.0)	18.3
>10	118 (51.0)	112 (49.0)	27.7
Residence	$P=0.978$		$P=0.029$
Urban	343 (49.8)	346 (50.2)	26.6
Rural	72 (49.7)	73 (50.3)	17.9
Male partner age, y	$P=0.904$		$P<0.001$
≤20	1 (50.0)	1 (50.0)	100.0
21–30	81 (46.8)	92 (53.2)	35.8
31–40	166 (51.5)	156 (48.5)	25.2
41–50	87 (50.0)	87 (50.0)	20.1
51–60	47 (50.0)	47 (50.0)	13.8
61–70	19 (43.2)	25 (56.8)	18.2
71–80	14 (56.0)	11 (44.0)	32.0
Male partner income status	$P=0.300$		$P=0.007$
High	138 (52.3)	126 (47.7)	18.9
Low	275 (48.4)	293 (51.6)	27.6

[a] Values are given as number (percentage) unless otherwise indicated.