
Patterns of Partnership and Condom Use in Two Communities of Female Sex Workers in Tanzania

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Two rapid ethnographic studies have found that commercial sex workers (CSWs) and other high-risk women in Tanzania have different categories of partners, ranging from single-time contacts to long and enduring relationships. Since the advent of HIV/AIDS prevention programs in Tanzania in the late 1980s, CSWs and their clients have been aware of the multiple benefits of condom use for the prevention of pregnancy and STDs including HIV. These women often use condoms for the single-time contact. However, since the HIV/AIDS epidemic, casual partners have decreased in number. These days, most of their sexual contacts occur within long-term partnerships, and within these relationships, condom use is rare. Although the message that condoms should be used during high-risk behavior has been largely accepted, the definition of a high-risk relationship needs to be extended from casual partnerships to include multiple long-term partnerships. In addition, men and women's empowerment through education, business, and equal rights needs to be addressed at all levels of society.

Key words: female sex workers, partnership, condom use, East Africa, HIV prevention

Of special concern in East Africa since the 1980s has been truck-stop communities and female sex workers who have been linked to the spread of the HIV/AIDS epidemic (Carswell, Lloyd, & Howells, 1989; Kreiss et al., 1986). HIV prevalence among a sample of female bar workers tested in Dar es Salaam increased from 29% in 1986 to 42.4% in 1988 (Akim et al., 1989). In 1991, 55.7% of the females and 31% of the males living at the truck stops along the Tanzania-

Zambia Highway were infected with HIV-1 (Ocheng et al., 1993).

Tanzania lies on Africa's east coast on the Indian Ocean, surrounded by eight countries. For millennia, trade has been moving goods back and forth between the Indian Ocean and the interior of the continent. The port of Dar es Salaam is one of East Africa's largest, and from there, goods are carried inland by truck and train. The highway reaching from the port to Zambia is the major cross-country artery. Nine major truck stops dot the highway, supporting the truck drivers with petrol, food, lodging, and many other services.

More than 90% of HIV transmission in Tanzania is due to heterosexual transmission (United Republic of Tanzania, 1998). Having multiple sexual partners has been associated with increased risk of HIV infection (Carswell et al., 1989; Kapiga, Lwihula, Shao, & Hunter, 1995; Mnyika, Klepp, Kvale, & Ole-King'ori, 1996). Since condoms have been shown to prevent the transmission of HIV (Conant, Hardy, Sernatinger, Spicer, & Levy, 1987; Weller, 1993), the government of Tanzania has supported the use of condoms as an important measure in the prevention of HIV (Ndeytabura, Paalman, & Swai, 1994). Although condoms have been more accessible in recent years following aggressive social marketing (Manchester,

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1998), there are still many barriers to condom use even among the high-risk groups that use them the most.

In Tanzania, female commercial sex takes four forms: (a) *waziwazi* (open or frank) prostitution in which women work from their own rooms within a community, (b) employed women supplementing their salaries, (c) brothel girls, and (d) streetwalkers. The two ethnographic studies reported in this article identify and discuss some of the barriers to condom use among the first two groups of high-risk women.

Methodology

In 1991 and 1993, two studies using rapid ethnographic techniques were conducted with two groups of high-risk women to examine their partnerships and their beliefs and behaviors with regard to STDs and HIV/AIDS. The purpose of the studies was to gain an in-depth understanding of the environment in which the women and their partners meet and interact and to provide insight into the best methods for promoting behavior change among them.

The first group studied were women, and most of them were barmaids and hotel attendants, living and working at four truck stops along the 1,000 kilometer Tanzania-Zambia Highway (O'Connor, Leshabari, & Lwihula, 1991). One of the truck stops was 5 kilometers outside Morogoro, a town with a population of about 69,000 and situated 300 kilometers west of Dar es Salaam. The second study, in 1993, was carried out at the center of Morogoro on Shamba Street, where a long-term community of *waziwazi* female sex workers lived and worked in their own distinctive community (Outwater et al., 1995).

Both rapid ethnographic studies were complemented by knowledge, attitude, and practices (KAP) studies that included questions on demographic characteristics, partnership, and HIV/AIDS knowledge. These studies, done in 1993, have been reported elsewhere (Laukamm-Josten et al., in press; Nkya, Outwater, Lwihula, Lyamuya, & Nguma, 1995). The KAP study samples were taken from the same populations as were interviewed for the rapid ethnographic study, but they were not necessarily the same individuals. It was not possible to correlate the interviews with the KAP questionnaire because to protect the

informants, interviewing was done anonymously and different data sets cannot be matched.

Data Collection

The first study at the truck stops used eight field workers to collect data—four female and four male graduate and undergraduate students from the University of Dar es Salaam. Two field workers in the first study also participated in the 1993 study, conducted within the community on Shamba Street, and were joined in the data collection by a nurse and a teacher. None of the field workers had prior training in anthropology. Before each study, they participated in a 1-week training course in Dar es Salaam. The course focused on technical and methodological issues, including study rationale and objectives, culture and language, sexual behavior and AIDS, and collecting and recording data. Didactic training was accompanied by field practice focused mainly on entry approaches to the communities. While gathering data for the truck-stop study, the field staff lived at the truck stops. During the Shamba Street study, they stayed nearby in town.

Rapid assessment data collection methods were employed in both studies, as a process of discovering and describing the culture in which the women worked. Four techniques were used: (a) situational observations of events and behaviors, (b) in-depth interviews, (c) individual and group conversations, and (d) participant observations of the daily sociocultural context of the communities.

Field workers were guided by an ethnographic field guide developed by the investigators as a day-to-day reference tool. It contained general information on ethnographic methods and instructions for collecting data. Topics studied included normative patterns and pattern variations related to sexual behavior, condom use, STD health-seeking behavior, and the knowledge, attitudes, and practices relating to HIV/AIDS. In the second study, emphasis was also put on recruitment and migration patterns.

The research at the truck stops was conducted over a period of 1 month and at Shamba Street, over a period of 3 months. In the field, workers made handwritten notes while talking to the informants and then expanded them later the same day, using memory and

the handwritten notes as a guide. In both studies, field notes were reviewed weekly by the investigators. Approximately halfway through the fieldwork, investigators and field-workers met for a review workshop to ensure consistency and quality in the data collection methods.

Data Analysis

After the fieldwork was completed, all of the handwritten field notes were translated from Swahili to English. This step was necessary because some of the investigators in each study were insufficiently fluent in Swahili to analyze the original records. To check against the loss of cultural and linguistic information during translation, the Tanzanian investigators worked from the Swahili notes. Data analysis was done by systematically looking for patterns in the recorded observations and interviews, tabulating and clustering similar responses. These responses were then summarized with the topic areas of partnership and condom use.

FINDINGS

Characteristics of the Two Groups of Women

The two study populations had different characteristics. At the four truck stops, of approximately 400 women, 128 were interviewed during the ethnographic study and 121 answered an anonymously recorded KAP questionnaire. The population of women at the truck stops consisted of barmaids, hotel workers, *pombe* (local brew) sellers, and freelance CSWs, representing almost every region in Tanzania. All but 3 were 34 years old or younger; their average age was 24. Only 4 had any postprimary education. Most of them had come from rural areas. The population at the truck stops was fluid; the women and their partners move from truck stop to truck stop; in 1991, two thirds of the women had been at their jobs for less than 2 years. Although most had multiple sexual partnerships, they did not view themselves as prostitutes. (See Table 1.)

Of 100 CSWs on Shamba Street, 50 were interviewed and 48 answered a KAP questionnaire. The women living on Shamba Street were all from north-west Tanzania, more than 1,000 kilometers away. They

Table 1. Sociodemographic Characteristics of Women Living at Truck Stops in 1991 and at Morogoro in 1993

	Truckstops (N = 121)		Morogoro (N = 48)	
	n	%	n	%
Age				
15 to 24	74	61.2	3	6.2
25 to 34	44	36.4	28	58.3
35 or older	3	2.5	17	35.4
Education				
None	16	13.2	9	18.7
Primary (1 to 4 years)	20	16.5	16	33.3
Primary (5 to 8 years)	81	66.9	22	45.3
Postprimary	4	3.3	1	2.1
Marital status				
Married	17	14.0	0	0
Single	NA	NA	7	14.58
Other	104	86.0	41	85.41

spoke of leaving abject poverty, where there was not enough money for clothes or soap. Their average age was 32. Most were not educated beyond the primary school level. They earned their livelihood as self-proclaimed prostitutes.

They reported that they joined the trade primarily due to family problems such as severe and frequent beatings by, unfaithfulness of, death of, and barrenness and subsequent rejection by their husbands and, secondarily, because of a lack of support from parents, as local traditions are not sympathetic to divorced or separated women, and an inability to inherit land and property. When a marriage became untenable, they had to support themselves, and so, they were enticed by the appearance and evident wealth of CSWs on vacation.

The CSWs on Shamba Street formed a distinct cultural and linguistic community within the town and had lived in this community for 2 to 24 years. They practiced *waziwazi* style, in which they lived and worked in their own small rooms made of rough wattle and daub (poles and mud). Although the rooms were neat inside, the surroundings were waterlogged during the rains, and a polluted stream ran nearby. Previously, they had been able to send children to secondary school, buy plots of land at home, and support their parents with their earnings. In the past several years, they had become extremely impoverished, earning much less than even a few years before due to changes

that were taking place in their community; the population had decreased by half due to AIDS and out-migration.

Most of the women from both groups had had brief, failed marriages. Children of these marriages were left with the women's mother in the home village. Children of later marriages or partnerships were sometimes with their mothers and sometimes sent to relatives in rural areas.

Types of Partners

Short- and long-term partnerships existed in both groups of women. The short-term partner was the casual or *mhuni* one-time partner in which no bond lasted beyond sexual intercourse. The *bwana* was a long-term partner or client. The CSWs on Shamba Street also often had a "nightmate," a long-term partner who spent the night with the CSW.

Some of the women at the truck stops had few casual partners, whereas others had large numbers of partners. In this setting, one-time relationships usually lasted from a few hours to a whole night.

The majority of the short-term customers on Shamba Street were soldiers from nearby bases. Others included petrol station attendants, petty businessmen, taxi drivers, students, Maasai herders, managers in government and parastatal organizations, and Indian businessmen. The chief criterion for choosing a client was the perceived ability to pay, but before accepting him, CSWs reported that they assessed each one to screen out those with clear signs of diseases such as leprosy and superficial conditions such as albinism. In the past, *mhuni* had walked in and out of the waziwazi CSW's routine 5 to 15 times a day.

The CSWs on Shamba Street experienced a massive downturn in short-term partners beginning in the early 1990s due to the fear of HIV/AIDS. At the time of the study in 1993, many did not see more than one client in 2 days. Those they were still seeing were long-term clients.

The *bwana* was a special client whose relationship with the woman may last several weeks to several years. Some visited frequently, and others visited inconsistently. Although the man did not live with the woman, he might bring her presents or subsidize her living expenses. Some women receive living room sets

or houses. On the truck route, many of the business relationships between drivers and the women who sell cooking oil, soap, clothes, and other products were between enduring partners.

At the truck stops, the *bwana* would stay with the woman every time he came through on a trip. At Shamba Street, the *bwana* would not spend the night but would visit during the day or early evening.

At Shamba Street, there was a second type of long-term partner, called the nightmate. The nightmate is one who acts as a husband and offers a degree of protection, security, and comfort. Nightmates acknowledged the CSW activities and stayed away until about 11 p.m. Many of them were pushcart drivers, shoe shine boys, and petty thieves who had no places of their own. Some nightmates were partially supported by the CSWs, but usually, it was their job during the day to get enough money to spend the night—about \$2.

Condom Use

The women in both groups were very knowledgeable about HIV/AIDS and other STDs. They knew that one of the principal methods for preventing these diseases is the use of condoms.

Two nongovernmental organizations, African Medical Research and Education Foundation (AMREF) and Faraja Trust, had been distributing National AIDS Control Programme (NACP) condoms to their target populations since 1990. Condoms were freely available at both sites; women had them on hand and were knowledgeable about the meaning of manufacture and expiration dates. It was reported that because condoms were free of charge, they were no longer being reused.

The CSWs at Shamba Street reported that the incidence of STDs had decreased noticeably since the advent of free condom distribution. They liked condoms for economic reasons; a lot of money was saved because of decreased STDs.

At both sites, condom use was common with casual partners. However, sometimes partners were reluctant or refused to wear condoms. Reported side effects of condoms included increased menstrual cramps and vaginal irritation. It was also reported that they burst. Some believe that they can cause cancer.

Most women seemed to believe that they were powerless to negotiate sexual activities or condom use with long-term partners, and condom use was uncommon within them. If the partner did not want to wear a condom, the woman risked losing him if she refused.

The reasons given as to why condoms are not used with long-term clients were socioemotional and economic. Emotional reasons included the following:

He is the one I love. I mean, he does not pay for sex; he looks after me and helps me with all my problems. But his money is not enough. He can look after me, but he cannot look after my mother or my children.

I trust my partner. He is the father of my children.

He will tell me that I am comparing him with an *inhuni*. I don't know if he goes with other women, but I see him everyday. I just have to pray for God's mercy.

The driving force, however, for the CSWs was economic:

I have two alternatives: to die of hunger or to have money but get infected with AIDS.

I have to respect him as long as he satisfies my [material] needs.

You know when you sleep with your permanent lover, you have to make sure that you make him enjoy as much as possible because he gives you good money. For those who come and go, it is not so necessary.

Although most women expressed fear of becoming infected with HIV, not one reported being concerned that she might infect her client, partner, or child.

Discussion

The studies reported here are especially important because CSWs form a core group in the spread of HIV/STD (Plummer et al., 1991). They are "that subset of the population in which the infection is present and that sustains sex partner exchange rates greater

than the critical threshold" (Brunham & Ronald, 1991).

In general, women in Tanzania are poor and under-educated. More than 90% live without electricity, and four fifths live on dirt floors. In 1991-1992, only 4% of women ages 20 to 64 had any post-primary education; about one third have had no formal education (Ngallaha, Kapiga, Ruyoya & Boerma, 1993).

The women in our studies came from rural areas. One of them, Kagera region, formerly part of the Buhaya Kingdom, has been studied more than most regions of Tanzania. It was a region continuously settled with a cattle-banana system of agriculture for more than 2,000 years (Reining & Bosch, 1994). Under severe economic and social stresses in the past several centuries, this *kibanja* system of agriculture has collapsed. In addition, the Buhaya inheritance system has encouraged the fragmentation of plots that can no longer sustain the present population levels at reasonable standards of existence (Kaijage, 1993). Substantial emigration has come to characterize the population of Buhaya. Other areas of Tanzania from where the women of the truck stops come may have similar histories.

Although they were a bit more educated than the average Tanzanian woman, 97% of the women in these studies have had no more than primary school education. Thus, they could not seek employment in the formal sector. Their options for income generation include farming on land that is almost always owned by men, petty trading, housemaid and bar work, and commercial sex (Mmari, 1993). Most of them were emigrants from rural areas, which usually have lower HIV rates than urban areas (Barongo et al., 1992; Mnyika et al., 1994; Soderberg et al., 1994). Most were divorced and had children to support.

Waziwazi prostitution exists in many East African cities, and groups of women with virtually identical demographic and cultural characteristics have been documented in Kenya and Tanzania (Nkya et al., 1991; Simonsen et al., 1990; White, 1990). The population of at least some of these communities has rapidly decreased since the HIV/AIDS epidemic (Mhalu et al., 1991; Nkya, Lyamuya, Outwater, Lwihula, & Mwangi, 1993). On Shamba Street, the women used to make a relatively good living. However, by 1993,

their earnings had decreased dramatically, and the CSWs lived impoverished. Likewise, 90% of the women at the truck stops reported that they earned too little at their regular jobs to ensure survival.

In 1993, 49.4% of the women at the truck stops along the Tanzania-Zambia Highway were HIV positive (Chelag et al., 1992). This compares with the 35% of barmaids and waitresses in Dar es Salaam (Mhala et al., 1991). Of the women practicing waziwazi commercial sex work on Shamba Street, 64% were HIV positive (Nkya et al., 1993), which is a rate similar to other groups of waziwazi CSWs in other East African cities (Nkya et al., 1991; Simonsen et al., 1990).

Studies in Tanzania have shown high condom awareness but low regular use among bar workers (Mhalu et al., 1991; Mnyika, Kvale, & Klepp, 1995). The studies reported in this article show that condom use in casual encounters was high but inconsistent. In other settings, condoms are more often used with casual partners than with long-term partners (Abdool-Karim, Abdool-Karim, Preston-Whyte, & Sankar, 1992; Leigh et al., 1993).

However, at least in the study populations reported here, most of the sexual interactions of barmaids and CSWs are not with wahuni short-term clients. Those with whom the barmaids and CSWs have sexual intercourse most often now are bwanas and nightmates. In Harare, Zimbabwe, 65% of CSWs said that their last client was a repeat client (Wilson, Chiroro, Lavelle, & Mutero, 1989). In Kinshasa, 68% of the CSWs reported having a stable partner (Nzila et al., 1991). Even among female sex workers, many if not most acts of sexual intercourse take place between long-term partners in which the economic, social, and emotional stakes are greater.

The CSWs on Shamba Street report that very few casual clients remain. In focus groups, the women at the truck stops said that the numbers of partners were decreasing (African Medical Research and Education Foundation [AMREF], 1993). The decline in CSW clients might well have been the first part of a trend toward partner reduction that has since been reported in other populations in East Africa (Assimwe-Okiror, 1995; Borgdorff et al., 1994; Pool, Maswe, Boerma, & Nnko, 1996).

It is not uncommon for poor, under-educated women in Tanzania to have multiple partners to gain access to

resources that are otherwise beyond their reach (Joinet, 1992; Ngallaba et al., 1993). More research would be useful on this high-risk strategy of economic survival with other groups of single, low-income women.

Within the populations studied, of special epidemiological concern are the long-term partners, particularly the bwanas who visit the CSWs but whose primary and other relationships lie elsewhere. Their behavior has similar patterns to that of CSWs but is much less studied.

In the studies reported here, although most of the women claim that they often or always use condoms with casual partners, it is clear from the interviews that they almost never use condoms with long-term partners. A similar observation has been made about CSWs in other settings (Carael, Cleland, & Adeokun, 1991; Pickering, Quigley, Hayes, Todd, & Wilkins, 1995; Wawer, Podhisita, Kanungsukkasem, Pramualratana, & McNamara, 1996) and factory workers in northwest Tanzania (Borgdorff et al., 1994). In the latter population, it was found that many more men had sexual intercourse in the past month with long-term rather than with casual partners. The more familiar the partner, the less likely that a condom was used: casual partners (18%), steady partners (2%), and spouses (0.2%).

The women in the two reported ethnographic studies stated that condom use is something that they let the men decide, especially in long-term partnerships. Most of the women believe that they are powerless to negotiate types of sexual activities or condom use with long-term partners. If she refuses, she risks losing the partner. The majority of women in Dar es Salaam family planning clinics also said that they were not using condoms because men did not like them, indicating that men's negative attitudes about condoms was a major barrier in increasing the acceptability of condoms in these women (Kapiga, 1996). In Zimbabwe, in a study of CSWs, of 221 coital contacts with clients reported in the past week, condoms were used in 49.3% of cases, and client refusal was the major reason cited for not using condoms in the other half of the encounters (Wilson et al., 1989).

Because men seem often willing to use condoms in relationships that are perceived as high risk, the definition of a high-risk partner needs to be expanded

beyond the one-time partner to include multiple long-term relationships. The acceptability of condom use within multiple long-term relationships needs to be increased, and men must be urged to take a stronger stand for condom use within them.

The outward face of commercial sex work in Tanzania is changing due to the effects of the HIV/AIDS epidemic and socioeconomic changes. For example, by 1997, the Shamba Street waziwazi community had decreased to 15 women, and almost all the rooms, having been made of wattle and daub, had collapsed. Yet visual evidence since 1994 suggests that in most towns in Tanzania, including Morogoro, the number of streetwalkers is increasing.

Although the outward aspects of CSWs in Tanzania are changing, it is likely that the deeper patterns of partnership and condom use that we saw in the two different groups of high-risk women will persist. Therefore, this information must be integrated into the implementation of intervention programs to prevent HIV. Information, education, and communication (IEC) programs should focus on what has been learned.

- The CSW's first motivation is economic.
- the numbers of partners are decreasing,
- condom use has been largely accepted in short-term relationships, and
- condom use is rarely accepted in long-term relationships.

Individually, the CSWs and their partners should receive full support in preventing STD/HIV, including free male and female condom distribution and appropriate STD treatment when required. Finally, as Kaijage (1993) has pointed out, the spread of STDs is a multifaceted problem. Economic, social, cultural, and even psychological forces all come into play, and STDs run rampant in periods and places of instability.

Now, that the broader messages of HIV prevention are out, a multisectorial approach will be most effective, especially if it is aimed at addressing long-term issues within a microcosm. For example, rehabilitating or developing sustainable systems of agriculture with markets to relieve the pressure to emigrate might be especially successful in the Kagera region. Examining laws of inheritance and cultural issues, such as a

woman's value and role in society, may be of particular import for some cultures. Empowerment through education, business, and equal rights are other crucial issues that have begun to be addressed in Tanzania for men and women and deserve support as a matter of urgency.

References

- Abdool-Karim, Q., Abdool-Karim, S. S., Preston-Whyte, E., & Sankar, N. (1992). Reasons for lack of condom use among high school students. *South African Medical Journal*, 82, 107-110.
- Akim, C., Mhalu, F., Senge, P., Shao, J., Bredberg-Raden, U., Biberfeld, G. (1989). Determination of the effectiveness of intervention measures for reduction of HIV transmission in a cohort of bar and restaurant workers in Dar es Salaam. *Proceedings of First International Conference on HIV/AIDS in Africa*. Arusha, Tanzania.
- African Medical Research and Education Foundation. (1993). *Interim report for Family Health International/AIDSTECH*. Nairobi, Kenya: Author.
- Assimwe-Okiror, G. (1995). *Report on population based survey in Jinja district*. Kampala, Uganda: National STD/AIDS Control Programme.
- Barongo, L. R., Borgdorff, M. W., Moshia, F. F., Nicoll, A., Grosskurth, H., Senkoro, K. P., Newell, J. N., Changalucha, J., Klokke, A. H., & Killewo, J. Z. (1992). The epidemiology of HIV-1 infection in urban areas, roadside settlements and rural villages in Mwanza region, Tanzania. *AIDS*, 6, 1521-1528.
- Borgdorff, M. W., Barongo, L. R., Newell, J. N., Senkoro, K. P., Deville, W., Velema, J. P., & Gabone, R. M. (1994). Sexual partner change and condom use among urban factory workers in northwest Tanzania. *Genitourinary Medicine*, 70, 378-383.
- Brunham, R. C., & Ronald, A. R. (1991). Epidemiology of sexually transmitted diseases in developing countries. In J. Wasserheit, S. Aral, & K. Holmes (Eds.), *Research issues in human behavior and sexually transmitted diseases in the AIDS era* (pp. 61-80). Washington, DC: American Society of Microbiology.
- Carael, M., Cleland, J., & Adekun, L. (1991). Overview and selected findings of sexual behaviour surveys. *AIDS*, 5, S65-S74.
- Carswell, W. J., Lloyd, G., & Howells, J. (1989). Short communication. Prevalence of HIV-1 in East African lorry drivers. *AIDS*, 3, 759-761.
- Conant, M., Hardy, D., Sematinger, J., Spicer, D., & Levy, J. A. (1987). Condoms prevent transmission of AIDS-associated retroviruses. *Journal of the American Medical Association*, 255, 1706.
- Joinet, B. A. (1992). *The challenge of AIDS*. Dar es Salaam, Tanzania: African Medical Research and Education Foundation.
- Kaijage, F. J. (1993). AIDS control and the burden of history in northwestern Tanzania. *Population and Environment*, 14(3), 279-300.

- Kapiga, S. H. (1996). Determinants of multiple sexual partners and condom use among sexually active Tanzanians. *East African Medical Journal, 73*, 435-442.
- Kapiga, S. H., Lwihula, G. K., Shao, J. F., & Hunter, D. J. (1995). Predictors of AIDS knowledge, condom use and high-risk sexual behaviour among women in Dar es Salaam, Tanzania. *International Journal of STD and AIDS, 6*, 175-183.
- Kreiss, J. K., Koenig, D., Plummer, F. A., Helmer, K. K., Lugemwa, M., Piot, P., Ronald, A. R., Nanyua-Achola, J. O., D'Costa, L. J., Roberts, P., Ngugi, E. N., & Quinn, T. C. (1996). AIDS virus infection in Nairobi prostitutes: Spread of the epidemic to East Africa. *New England Journal of Medicine, 344*, 414-418.
- Laukamm-Josten, U., Mwizarubi, B. K., Ourwater, A., Mwaijonga, C. L., Valadez, J. J., Nyanwaya, D., Swai, R., Saidal, T., & Nyamuryekung'e, K. (in press). Preventing HIV infection through peer education and condom promotion among truck drivers and their sexual partners in Tanzania 1990-1993. *AIDSCARE*.
- Leigh, B., Temple, M., Tocki, K., Marin, B. V. O., Gomez, C. A., & Hearst, N. (1993). Multiple heterosexual partners and condom use among Hispanic and non-Hispanic Whites. *Family Planning Perspectives, 25*, 170-174.
- Manchester, T. (1998). *Annual report Population Services International (PSI)/Tanzania*. Dar es Salaam, Tanzania: Population Services International.
- Mhalu, F., Hirji, K., Ijumba, P., Shao, J., Mbena, E., Mwakagile, D., Akim, C., Senge, P., Mponzezya, H., Bredberg-Raden, U., & Bibertfeld, G. (1991). A cross-sectional study of a program for HIV infection control among public house workers. *Journal of Acquired Immune Deficiency Syndromes, 4*, 290-296.
- Mman, F. J. (1993). Women in developing countries: The case study of economic factors as a function of HIV sexual and behavioral risks among African women. *VII International Conference on AIDS, Dakar, Senegal, 9(1)*, 107.
- Mnyika, K. S., Klepp, K. I., Kvale, G., Nilssen, S., Kissila, P. E., & Ole King'ori, N. (1994). Prevalence of HIV-1 infection in urban, semi-urban, and rural areas in Arusha region, Tanzania. *AIDS, 8*, 1477-1478.
- Mnyika, K. S., Klepp, K. I., Kvale, G., & Ole King'ori, N. (1996). Risk factors for HIV-1 Infection among women in the Arusha region of Tanzania. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology, 11(5)*, 484-491.
- Mnyika, K. S., Kvale, G., & Klepp, K. I. (1995). Perceived function of and barriers to condom use in Arusha and Kilimanjaro regions of Tanzania. *AIDS Care, 7(3)*, 295-305.
- Ndeytabura, E. F., Paalman, M. E., & Swai, R. O. (1994). Tanzania reacts to religious pressure on condoms. *International Conference on AIDS, 10(2)*, 284.
- Ngallaba, S., Kapiga, S. H., Ruyoya, I., & Boerma, J. T. (1993). *Demographic and Health Survey 1991/1992: Tanzania*. Dar es Salaam, Tanzania: Bureau of Statistics, Planning Commission.
- Nkya, L., Lyamuya, E. F., Ourwater, A., Lwihula, G., & Mwangi, M. (1993, October). *The pattern of sexually transmitted diseases in a group of commercial sex workers in Morogoro, Tanzania*. Paper presented at the VIII International Conference on AIDS and STD in Africa, Marrakech, Morocco.
- Nkya, L., Ourwater, A., Lwihula, G., Lyamuya, E. F., & Nguma, J. (1995, October). *Evidence of behavior change in a population of commercial sex workers in Morogoro, Tanzania*. Paper presented at the IX International Conference on AIDS and STD in Africa, Kampala, Uganda.
- Nkya, W.M.M.M., Gillespie, S. H., Howler, W., Eiford, J., Nyamuryekung'e, K., Astanga, C., & Nyombi, B. (1991). Sexually transmitted disease in prostitutes in Moshi and Arusha, northern Tanzania. *International Journal of STD and AIDS, 2*, 432-435.
- Nzila, N., Laga, M., Thiam, M. A., Mayimona, K., Edidi, B., VanDyck, E., Behets, F., Hassig, S., Nelson, A., Mokwa, K., Ashley, R. L., Piot, P., & Ryder, R. W. (1991). Prevalence of sexually transmitted diseases among female prostitutes in Kinshasa. *AIDS, 5(6)*, 715-721.
- Ocheng, D., Msauka, A., Mbuya, C., Nyamuryekung'e, K., Laukamm-Josten, U., Vuylsteke, B., Ourwater, A., & Dallabetta, G. (1993, October). *Prevalence of sexually transmitted diseases in females in seven truck stops in Tanzania*. Paper presented at the VIII International Conference on AIDS in Africa, Marrakech, Morocco.
- O'Connor, P., Leshabari, M. T., & Lwihula, G. (1991). *Ethnographic study of the truck stop environment in Tanzania*. Dar es Salaam, Tanzania: Report for Family Health International/AIDSCAP.
- Ourwater, A., Nkya, L., Lwihula, G., Lyamuya, E., Nguma, J., & Green, E. C. (1995). *Morogoro focused ethnographic study of commercial sex workers. Final report*. Dar es Salaam, Tanzania: Family Health International/AIDSCAP.
- Pickering, H., Quigley, M., Hayes, R. J., Todd, J., & Wilkins, A. (1995). Determinants of condom use in 24000 prostitute/client contacts in the Gambia. *AIDS, 7*, 1093-1098.
- Plummer, F. A., Nagelkerke, N.J.D., Moses, S., Ndinya-Achola, J. O., Bwayo, J., & Ngugi, E. (1991). The importance of core groups in the epidemiology and control of HIV-1 infection. *AIDS, 5*, 169-176.
- Pool, R., Maswe, M., Boerma, J. T., & Nnko, S. (1996). The price of promiscuity: Why urban males in Tanzania are changing their sexual behavior. *Health Transition Review, 6*, 203-221.
- Reining, P., & Bosch, C. H. (1994). *Report to the National Geographic Society's Committee on Research and Exploration*. Washington, DC: National Geographic Society.
- Simonsen, J. N., Plummer, F. A., Ngugi, E. N., Black, C., Kreiss, J. K., GaKinya, M. N., Waiyaki, P., D'Costa, L. J., Ndinya-Achola, J. O., & Piot, P. (1990). HIV infection among lower socioeconomic strata prostitutes in Nairobi. *AIDS, 4(2)*, 139-144.
- Soderberg, S., Temihango, W., Kadete, C., Ekstedt, B., Masawe, A., Vahine, A., & Horal, P. (1994). Prevalence of HIV-1 infection in rural, semi-urban and urban villages in southwest Tanzania: Estimates from a blood donor study. *AIDS, 8(7)*, 971-975.