

Availability of HIV/AIDS community intervention programmes and quality of services in and around selected mining sites in Tanzania

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Abstract

Background: Mining is one of the major sectors of the country's economy as it employs and attracts a large number of people from different areas. As a result, communities in and around mining sites are at great risk of HIV transmission. While a few unsynchronized mine-specific population-based studies provide evidence of a growing HIV problem in this sector, virtually few evidence exists on availability and quality of interventions targeting HIV and AIDS in this population. The study was conducted to assess the availability and quality of HIV/AIDS intervention programmes in and around mining sites in Tanzania.

Methods: This cross sectional study was conducted from November 2012 to April 2013. Both quantitative and qualitative methods were used to collect data. Study areas involved both mining sites and its surrounding communities in Kahama, Nzega and Geita Districts. It involved household members from villages in and around the mining sites, mining community relations officers, community health facility workers, district HIV/AIDS focal persons and village leaders.

Results: A total of 463 individuals were recruited into the study for household interviews. In-depth interviews with Key Informants involved 15 respondents. HIV/AIDS intervention programmes in the study area were available despite that knowledge of their existence was limited to a segment of the community. Their availability was only known to about 25% of the study respondents in Geita and Kahama study sites. The programmes carried out intervention activities which included HIV/AIDS education campaigns, promoting uptake of voluntary counselling and testing services, promoting and supporting condom use, safer sex, and male circumcision. HIV/AIDS services such as screening, distribution of condoms and ARVs for infected people were available and were offered free of charge.

Conclusion: Our findings show that HIV/AIDS intervention programmes were available despite that they were unequally distributed. Although their availability has contributed to the decrease of HIV prevalence in the community, knowledge of their availability was limited to some people in the community.

Keywords: HIV/AIDS, intervention programmes, services, mining sites, Tanzania

Introduction

The human immunodeficiency virus (HIV) infection has severe impact on the economy of many African countries. The disease is more pronounced in most productive age groups where it is essentially fatal (UNAIDS, 2002). The effects vary according to the severity of the AIDS epidemic and the structure of the national economies.

Mining in Tanzania accounts for 3.3% of the gross domestic product, with about 14,000 workforce and 52% of the country's total merchandise exports most of which originate from gold (WB, 2008). During the past five years alone, at least five large-scale gold mines have been on operational in Tanzania, all of which are partly owned by multinational companies with interests worldwide. Due to the sudden influx of money and people, mining towns have been known to register drastic increases in HIV/AIDS prevalence (IRIN, 2015; Cronje *et al.*, 2013). Over the years, the mining industry has relied on a system of migrant labourers where miners are absent from their families for extended periods of time while living in camps at remote mining sites. Extended separation from their families has often led miners to resort to alternative lifestyles that expose

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them to HIV infections (AMREF, 2002). The majority of the mineworkers are young single men who had emigrated to the mines where they interact with people around the mines confirming the pre-existence of a local HIV epidemic (AMREF, 1993, 2002). A study in a town closer to mining areas in the Lake Victoria Zone in Tanzania indicated that the HIV prevalence rate was about 45% (Desmond *et al.*, 2005). This was the highest rate of HIV prevalence among the registered prevalence in Tanzania. If the HIV/AIDS prevalence among mineworkers is higher than the national average a logical hypothesis which follows from this assumption is that, this sector is suffering and/or will suffer huge financial losses due to absenteeism and other effects from HIV/AIDS.

Despite current efforts by the government and various HIV/AIDS stakeholders to control HIV/AIDS in different segments of the community, only a few unsynchronized mine-specific population-based studies provide evidence of a growing HIV problem in the mining sector. Virtually no systematic study has been conducted to document the magnitude and quality of intervention efforts on HIV/AIDS in mining areas. This study was carried out to assess the availability, and quality of HIV/AIDS intervention programmes as perceived by the community in and around selected mining sites in Tanzania.

Materials and Methods

Study areas and target population

This was a cross sectional study that employed both quantitative and qualitative methods was conducted in three selected mining sites and surrounding communities of Buzwagi in Kahama district, Nzega Bulyanhulu Gold Mine in Nzega District and Geita Mining in Geita District. The sites were purposively selected due to existence of gold mining activities that influenced high influx of workers as well as other people seeking for socio-economic opportunities in and around those sites.

Sample size and sampling procedure

As for qualitative data, mining community relations officers, community health facility workers, leaders of NGOs/FBOs around the mines, district HIV/AIDS focal persons and district health officers; village and religious leaders and other influential villagers took part in the one to one in-depth interviews. As for quantitative data (questionnaires) a sample was chosen from the population in Nzega, Geita and Kahama and the sample size based on the 2002 population census which projected the population sizes to be 709,078, 415,203 and 594,891, respectively (total of 1,719,172) in 2008 (NBS, 2002). Using 95% confidence level, the prevalence of 50% (0.5), confidence interval of 5 (or 4) and standard error 0.05, the minimum sample size was calculated to be 385. Considering a 20% refusal and non-compliance to the study, an addition of 77 clients was added to restore the defects. Thus 462 was the minimum sample size from the three study sites.

In consultation with the district health representatives, a list of all wards in the district was obtained from which two wards were randomly selected. A multi stage sampling was used to allow the selection of study villages. In each of the selected ward, all villages were listed. A balloting method was used to select two villages from each of the selected wards and in each village two sub-villages were purposively picked with the intention to interview at least thirty households in each sub-village using the questionnaire survey.

Data collection

Documentary review: The desk review involved obtaining reading materials related to health in mining areas, occupational health and HIV/AIDS. Such information included published articles, survey results, strategic plans, policy and guidelines and other written reports from various sources. A careful collection and review of these documents provided the overall introductory insights and facts

on the state of mining versus its economic impact as far as HIV/AIDS is concerned. The review also helped to document the HIV/AIDS related services including available HIV/AIDS interventions.

Household questionnaire surveys - quantitative arm: Household questionnaire was systematically conducted to represent the study site community. Convenient sampling technique was employed in each setting to administer the questionnaires among the household members. In each household, the head of household was asked to consent to take part in the survey, where unavailable, any other household member above 18 years who has stayed there for more than six months was interviewed. The collected information included respondent's demographic data (age, sex, marital status, level of education, occupation, and household/family size), knowledge of any HIV/AIDS interventions and services available in their community. Individual perception on quality of HIV/AIDS services provided through the community intervention programs was also sought. The structured interview guide for community leaders and district health workers was used to collect information on adequacy of HIV/AIDS care and treatment services, availability of HIV/AIDS interventions in their area, the organizations that operated the interventions, and individual opinion on their effective in reducing HIV/AIDS in the mining communities.

Interviews with Key Informants – qualitative arm: Key informant interviews were held with village leaders, district HIV/AIDS focal persons and mining community relations officers. Furthermore, the one-to-one in-depth interview with District AIDS Coordinators and in-charges of the health facilities available in the selected areas complemented the information related to the available and quality of the HIV/AIDS related services in the study area.

Data analysis

Quantitative data was entered into the computer using Epi-Info® software. Data cleaning, error corrections and consistency checks was done before being entered into STATA® software for descriptive analyses. Qualitative data was audio-recorded and transcribed for content coding. The analysis of the data collected was carried out by describing, summarizing and interpretation guided by the research objectives. The emerging themes were underlined before the results were deployed to reach key conclusions pertaining to the research objectives of the study.

Ethical consideration

The study received approval from the Medical Research Coordinating Committee of the Tanzania National Institute for Medical Research (Reference number: NIMR/HQ/R.8a/VOL.IX/1425). Administrative permissions were sought from district, village and the selected mines. During field work, all interviewees were informed about the study objective, the topic and type of questions, their right to agree or refuse to be interviewed before the start of the interviews. They were also informed of the right to interrupt the conversation at any time, to withdraw any given information during or after the interview, and the intended use of the results. A written consent was sought from every participant after being assured that they were not going to be put at any risk of being harmed physically or psychologically.

Results

Socio- demographic characteristics of study participants

A total of 463 individuals from Geita, Kahama and Nzega were involved into the household interviews for the study. Among them, 241 (52.1%) were males and 222 (47.9%) were females. The study participants' age ranged from 18 to 88 years with the median age being 31 years. Participants from the three study sites were more or less similar in their demographic features (Table 1). Fifteen respondents were involved in the in-depth interviews as Key Informants. Of the 15, four were key HIV/AIDS from the respective District AIDS Control programme; five were community leaders and six

were key personnel in the mining sites. The minimum age of all the Key Informants was 30 years for both males and females.

Table 1: Socio- demographic characteristics of the study participants (N=463)

| Characteristic | Response | Geita | Kahama | Nzega | Total |
|--------------------|-----------------------------|-----------|-----------|-----------|-----------|
| | | n (%) | n (%) | n (%) | N (%) |
| Sex | Males | 92(52.9) | 97(53.9) | 52 (47.7) | 241(52.1) |
| | Females | 82(47.1) | 83(46.1) | 57 (52.3) | 222(47.9) |
| Age | 18-24 | 45(25.9) | 54(30.0) | 28 (25.7) | 127(27.4) |
| | 25-49 | 111(63.8) | 94(52.2) | 64 (58.7) | 269(58.1) |
| | 50+ | 18(10.3) | 32(17.8) | 17 (15.6) | 67(14.5) |
| Marital Status | Living with a partner* | 118(67.8) | 108(60.0) | 84(77.1) | 118(67.0) |
| | Single | 35(20.1) | 39(21.7) | 13(11.9) | 87(18.8) |
| | Not living with a partner** | 21(12.1) | 33(18.3) | 12(11.0) | 66(14.3) |
| Occupation | Unemployed | 11(6.3) | 9(5.0) | 4(3.7) | 24(5.2) |
| | Employed | 36(20.7) | 24(13.3) | 8(7.3) | 68(14.7) |
| | Miners | 33(19.0) | 1(0.7) | - | 34(7.3) |
| | Business | 42(24.1) | 26(14.4) | 7(6.4) | 75(16.2) |
| | Peasants | 52(29.9) | 120(66.7) | 90(82.6) | 262(56.6) |
| Level of education | No education | 32(18.4) | 37(20.6) | 45(41.3) | 114(24.6) |
| | Primary school | 111(63.8) | 110(61.1) | 54(49.5) | 275(59.4) |
| | Secondary school | 29(16.7) | 30(16.7) | 10(9.2) | 69(14.9) |
| | Tertiary | 2(1.2) | 3(1.7) | - | 5(1.1) |
| | Total | 174(37.6) | 180(38.9) | 109(23.5) | 463 |

* Cohabiting and married ** Divorced, separated or widowed

Available HIV/AIDS intervention programmes

The existence of HIV/AIDS community intervention programmes was only known to about a quarter of the study respondents in Geita and Kahama study sites. Only 17 (15.9%) of the respondents in Nzega were aware of the interventions (Table 2). Those who knew about HIV/AIDS interventions were aware that African Medical Research Foundation (AMREF), village administrations and government initiatives through nearby health facility implemented some programmes in their communities. There were few community intervention programmes in Geita where apart from AMREF, only government initiatives through village authorities and nearby health facilities existed. Mining companies in Kahama took the responsibility to stage up some HIV/AIDS intervention campaigns in and around the mining communities.

All key informants acknowledged on availability of community HIV/AIDS intervention activities in their communities and that the interventions were effective as they have contributed to the reduction of HIV infection rate in the community. Intervention programmes were reported to carry out activities including education campaigns to enable people to know their HIV status through voluntary counselling and testing (VCT), promoting and supporting condom use, safer sex, male circumcision and risk reduction counselling especially in young people and sex workers. The respondents acknowledged that the interventions have made it possible for many people in their communities to know their HIV status and therefore to change their behaviour as testified by one community representative from Kahama *“The trend of HIV in fact it is not increasing at a fast speed as people have the knowledge on how they can protect from being infected”*. Another community member from Kahama had these to say *“More has been done to sensitize people but what is left is for them to change their personal behaviours. Although knowledge is high, the infection rate is still high”*. On the other hand, one health provider pointed out that *“The prevalence decreased from 10 percent*

in 2009 to 7 percent in 2012 as people have been sensitized for screening” (Nzega Gold Mining Health Facility representative).

Table 2: Number of available community HIV/AIDS interventions programmes and institutions

| Study site | Respondents | Yes, aware of any intervention activities, n (%) | Number of Programmes | Responsible institutions for HIV/AIDS Intervention activities |
|------------|-------------|--|----------------------|--|
| Geita | 170 | 170 (25.3) | 4 | AMREF, Village Committee, Government, Hospital |
| Kahama | 179 | 43 (24.0) | 9 | AMREF, Village Committee, Government, World Vision, SHIDEFA, Mining Company, TUNAJALI, CARE International, Red Cross |
| Nzega | 107 | 17 (15.9) | 6 | AMREF, Village Meetings, Government, Hospital, TUNAJALI, CARE International |

Availability and accessibility of HIV/AIDS services

Key Informants were of the opinion that HIV/AIDS services such as screening, distribution of condoms and antiretroviral drugs (ARVs) for infected people were available for all community members and were offered free of charge. There were some variations in responses regarding accessibility of HIV/AIDS services. While in the mining communities VCT services were reported to be located close to the community, those who were infected with HIV and mine workers were facilitated with transport to and from the health facilities where HIV/AIDS services were available. The situation in communities around mining sites was different. For example, in Geita, there were 12 centres offering HIV services which were not close enough to the communities but in Kahama and Nzega it was reported that the services were available while others said they were not easily accessible. A representative of Geita District Hospital had these to say: “... in our district we have 12 centres offering care and treatment services but they are not very close to the community. Some people stay very far from these centres. For example, in the mining areas the centres were very close thus the communities in these areas easily access the HIV services.” Similarly, another key informant added: “CTCs are few, we have 70 centres but only 10 provide CTC services. Our district is big and some people have to travel long distances to get the services. This contribute to loss of most of the customers as when one gets somehow better does not come again and some do not have even the bus fare” (Kahama District Hospital Representative). On the other hand, a representative from Nzega had these to say: “It is available in the nearby ward many people get the services as it is free of charge”

Discussion

The current study shows that HIV/AIDS community interventions were available in the selected study sites. However, the knowledge of their existence was limited to a segment of the community. The programmes’ intervention activities included HIV/AIDS education campaigns, promotion of uptake of voluntary counselling and testing services, promotion and support of condom use, safe sex and risk reduction counselling, and male circumcision. HIV/AIDS services such as screening, distribution of condoms and ARVs for infected people were available for all community members and were offered free of charge. However, the services were unequally distributed between the communities in the study sites. Their number and location affected accessibility by the villagers than those employed in the mines.

Previous literature shows that interventions to promote HIV/AIDS awareness and change of risky behaviour in special groups help to prevent the spread of HIV/AIDS (Li *et al.*, 2009). This

emphasize on the need for interventions targeting at changing individuals' behaviour and addressing cultural norms, social attitudes and behaviour that increase people's vulnerability to HIV infection. The World Health Organization (WHO, 2014) suggested a similar emphasis to ensure the right to health is realized especially in the most at risk groups. The findings of the current study show that despite of not being popular, HIV/AIDS community intervention programmes were available. However, in some sites, the HIV/AIDS services were reported to be inadequate and located too far from the community thus affecting their accessibility. These findings were similar to those reported from a study India (Bhatia *et al.*, 2004). The low awareness on available HIV/AIDS intervention services in the community has some implications on strategies for behavioural change in all the study sites. The observed low awareness provides evidence that the intervention activities did not reach most of the people in the community. Although it was not part of the objectives of our study, it may have amounted by few activities and their low coverage due to limited funding. Similar findings were reported from a study in Uganda (Chireshe *et al.*, 2010). Although the majority of the participants in the study in Uganda were aware of the HIV/AIDS pandemic, they perceived the programmes as discriminatory and inaccessible to them (Chireshe *et al.*, 2010).

Involvement of both public and non-government institutions in running HIV/AIDS community interventions improves access and hence uptake of the services (UNAIDS/WHO, 2005). While mining companies in Kahama district took the responsibility to stage-up some HIV/AIDS intervention campaigns apart from those implemented by the public health institutions, other mining companies claimed to invest sufficient resources for HIV/AIDS intervention for their employees and neighbouring communities. However, the findings of this study indicate that the companies were rarely engaged in the actual implementation of the intervention activities. This is reflected by the lack of information on the contribution and effectiveness of the steps in reducing HIV transmission among their employees. To the contrary, an assessment of community health programmes in the mining and metals industry in South Africa shows the industry's strong engagement in prioritization, partnership arrangements and monitoring and evaluation around community health interventions including HIV/AIDS (ICMM, 2013). The implication of directly none involvement of the mining companies in the implementation of HIV/AIDS interventions in and around the study mining sites needs to be addressed as they are an important integral of the escalating problem.

The World Health Organization recommend that in sub-Saharan African countries with very high HIV prevalence, biomedical interventions including male circumcision in HIV-negative men may also be important components of prevention measures when combined with HIV testing and counselling and promotion of condom use (UNAIDS/WHO, 2005). Salam *et al.* (2014) in a recent study emphasized that the programmes will be effective if they ideally focus on individual responsibility, voluntary participation, and empowerment through access to information, services and support systems. Our study indicates that the available intervention programmes implemented at least all the major activities for appropriate HIV/AIDS control. Furthermore, the services provided were offered free of charge. The reported intervention activities in our study allow increased access and ease availability of the services to the population potentially at risk of, or already infected with HIV. The findings that the services were unequally distributed between the communities are important when considering improving the number and accessibility of the services. A major limitation remains on their nature and scale as they are reported to vary according to their level of funding and mandate. Therefore efforts are required to encourage them to focus on reaching those groups that are most at risk.

There are several limitations in this study. First, the questions to assess the quality of existing interventions were not formulated based on defined criteria to allow appropriate assessment. Our findings, therefore, only gives information on the availability and accessibility of HIV/AIDS interventions and little about perceived quality of the services provided in the community. Second, the study design did not include assessment on how and extent of implementation of the HIV/AIDS

intervention activities in the community. This leaves a lot of unanswered questions especially on the level and resultant impact of each of the activities. Third, some of the selected villages and especially the sub-villages in Nzega, did not have a population sufficient to meet the study sampling frame. Fourth, the selection of the three study sites was purposively. As indicated in the study rationale, although the findings provide insights for the basis to discuss and design large systematic studies to generate evidence for appropriate intervention, this limits the generalization (external validity) of our study findings.

In conclusion, this study has demonstrated that without effective interventions, communities in the mining areas are at substantial risk of an escalating HIV infection. In view of these findings, there is a need to increase the number of intervention activities targeting to promote awareness and behavioural change focusing communities in and around mining areas. None involvement of the mining companies in HIV/AIDS interventions was critical, thus requiring more action for improvement. For significant and measurable impacts, there is a need to institute appropriate and coordinated HIV/AIDS programmes with defined involvement of mining companies.

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