Original Article

Assessment of the experiences and coping strategies of people working in the informal sector in their quest to access health care services: The case of Dar es Salaam, Tanzania

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Summary **Addressing inequities in health care provision and financing has been at the center stage of Health Sector Reform (HSR) discussions since the early 1980s. The poor, women, and informal health sector workers in most developing countries are rarely covered by formal health insurance mechanisms that are meant to ensure access to essential health services. They are also sidelined in formal banking and credit systems due to their being predominantly low income earners, with little resources to meet eligibility criteria for borrowing and also to be considered creditworthy. In light of this fact, the present paper analyzes both quantitative and qualitative data in an attempt to explore and discuss the experiences and coping strategies of women and men employed in the informal sector economy in their daily attempts to access health care services. The paper employs Malaria as a tracer disease and gender as a unit of analysis. Analysis indicated the significance, as perceived by interviewees, of both informal credit networks and formal insurance and banking systems as important shock-absorbers for vulnerable populations in their struggle to access basic health services in times of need. The paper further highlights and discusses diverse coping strategies that households employ in dealing with illness-related costs and a greater willingness to be integrated into both formal and informal financial mechanisms. The paper finally concludes that the government must take the following steps: 1) enhance existing formal and community-based initiatives to make them sustainable, 2) devise ways to reduce the lack of flexibility in membership requirements for insurance schemes/financial institutions, and 3) reduce perverse incentives inherent in the health system that may prevent people from seeking membership in available insurance mechanisms. In addition, deliberate steps must be taken by the government to employ 'targeted measures' to ensure that health care access is improved and sustained particularly for vulnerable populations.**

Keywords: Informal sector, (In)Equity, Coping strategies, Access, Malaria

1. Introduction

1.1. *Background*

Addressing inequities in health care provision and financing has been at the center stage of Health Sector Reform (HSR) discussions since the early 1980s. More specifically, increasing access to health care for vulnerable African populations is one of the formidable challenges facing the global community (*1*). During the 1980s and 1990s, HSR intended to improve the efficiency of health systems in terms of delivery and financing of health services. A noble goal of these reforms was, among others, improve health care access for the poor and vulnerable populations who were already shouldering a dual burden of poverty and ill health.

In many countries (including Tanzania), these reforms included the introduction or consolidation of cost recovery mechanisms (in particular, out-of-pocket fees paid in the event of illness) which unfortunately had had an unintended consequence of decreasing access to health care for vulnerable population such as

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poor women and men (*1-3*).

Studies in most African countries have established that, in the event of ill health, poor households do not have recourse to mechanisms that will protect the financial resources for basic consumption needs such as transportation, education, health, and food not produced by the household (*1*).

Studies have further shown that even when mutual health insurance exists, low income households are initially reluctant to join insurance schemes because they do not readily accept the idea of paying for services they might not use (*4*).

Both in developing and developed countries issues of gender inequities in health have been "broadly" addressed to the extent that there are still some health equity gaps existing not only between men and women but also between and among women employed in the formal (modern sector) and those employed in the informal sector.

Given the historical fact that women in low income countries are the most disadvantaged in terms of bearing a higher burden of disease and being poorly covered by formal social security arrangements, there is an emerging consensus that, more than men, they should be given a higher priority and covered under existing social security schemes for health risks as workers and in their gender roles as mothers and widows. On both counts, however, coverage for women is often unsatisfactory. In many cases women remain invisible as independent workers in social security schemes (*5*).

Given the ongoing economic reforms and especially the privatization of public enterprises, most women have found themselves outside formal sector employment as a result of entrenchment. Problems of access as an important component of equity are even more entrenched and marked among women who are not employed either in the formal or in the informal sector.

There have been several efforts by health systems both in high and low income countries to institute support systems intended to ensure financial security necessary to bear the costs of access to health care services. Among the noted approaches employed by many countries, including Tanzania, is the establishment of National Health Insurance Funds (NHIF) and Community Health Funds (CHF).

One must acknowledge, however, that even in places where there are community health funds, not all women are members. Moreover, the fact that the NHIF (in Tanzania, it unfortunately has not covered all formal sector employees, much less those in the informal sector) excludes the unemployed leads to the conclusion that a significant number of women will be marginalized as they will not be directly or indirectly benefiting from the fund. This conclusion is based on the fact that in Tanzania proportionally fewer women are employed in the formal sector than men (*6*), a phenomenon that may potentially perpetuate their exclusion from formal financial security systems aimed at improving health service access and utilization as well as general socioeconomic wellbeing.

In Tanzania, like in most other developing countries, access is virtually restricted to few people who can afford to pay the associated costs of health care in the time of need. Research and experience has demonstrated that there is no sustainable health insurance for the rest of the population, most of which is often poorer than the salaried workers of the public and private sectors (*3*).

According to Letourny (*7*), illnesses such as malaria are unpredictable and occur randomly, their consequences are fatal and in most cases lead to loss of household income and increased household expenditures despite limited household resources. Unfortunately, solutions to cope with these illness-related costs are limited because among informal sector employees there is a significant reliance on traditional solidarity mechanisms that are inadequate and not sufficiently sustainable to cover the costs of health and economic risks with a reasonable degree of certainty (*3*).

While limitations of access to health care services may be even worse among the unemployed (than any other group in the formal or informal sectors), the current study refers strictly to people employed in the informal sector for both reasons of scope and reasons related to the potential role that the informal sector is likely to play to improving the country's economy in general and socioeconomic development for the poor in particular.

Moreover, the traditional notions of family with men as the primary breadwinner and head of households and women as dependants is often applied in the implementation of social security and social assistance schemes, including those related to health risk protection (*8*). Another important problem exists and is related to the fact that most women who work are in casual employment, with the result that they have to build up a certain contribution history before they are covered again by the scheme of their new employer (*5*), if they are somehow employed in the formal sector. This places women outside the margins of any existing form of social and protection mechanisms.

In addition, the rationale to emphasizing the study of informal sector employees in a low income setting like Tanzania is based on evidence from studies such as that conducted by Aday and Anderson (*9*), who demonstrated that there is a close relationship between access costs and utilization of health care. Access costs are influenced by factors such as waiting time at the facility and out-of-pocket payments, all of which may impact not only utilization but also the effectiveness of the health program (*10*). Thus, being predominantly low income earners…., there is a good reason to study informal sector workers who are, as explained in the current study, a vulnerable population because they face potential challenges in their attempt to access health care services due to their predominantly low incomes.

Access barriers to health care utilization are diverse.

However, health care costs constitute the major bulk of barriers to financial security for vulnerable groups such as women in the informal sector economy and thus represent a critical policy challenge. In essence, the existence of sustainable financial security mechanisms that can be accessed by all people, including the poor, can facilitate the softening of the effects of some factors that represent potential barriers to health care access, efficient and effective utilization of health care services, and ultimately improved health as the central policy goal of all health systems.

Uncertainty about the timing of illness (like malaria), unpredictability of health care costs during illness, and the low and irregular income of individuals (*1*) such as women and men in the informal economy make it virtually impossible for households to make financial provision for illness-related expenditures. Furthermore, most households with lives tied to informal sector activities are unable to obtain credit from formal banking systems, a phenomenon which makes them even further marginalized. In a nutshell, inadequate financing of health services in low income countries such as Tanzania and the absence of universal coverage leaves most informal sector employees in medical indigence as they cannot bear the unpredictable financial consequences of ill health.

Against this background, the current study attempted to achieve the following objectives. To generally assess the experiences of people in the informal sector in their quest for health care services, the problems and barriers they face, and the steps they take to deal with these problems. Specifically, the study compares rural and urban residents and women and men working in the informal sector in terms of their experiences, problems, and steps they take to cope with the realities of seeking and gaining access to health care services. Importantly and from a gender perspective, the paper explores and describes the associations between socioeconomic and cultural characteristics of individuals employed in the informal sector and their experiences and coping strategies in relation to barriers to health care access.

The rest of the paper is organized as follows. Section 2 sketches a conceptual framework under which the definitions of informal sector employees are described from a broader global view, and a particular context is presented to reflect the situation in Tanzania. Section 3 describes the methodology employed in the paper. Results are presented in Section 4. Section 5 interprets and discusses the main findings in relation to their policy implications and, finally, conclusions are presented in section 6.

1.2. *Different forms of informal sector employees*

Social security for the formal sector has traditionally involved coverage of formal sector workers (and their dependants) because of their ability to contribute to their own insurance from their salary. Also covered are workers who have informal labor relations with their employers, which often means the absence of written labor contracts (*11*).

Such informality does not only affect wage-earners and other groups such as home workers in the informal sector, but also casual workers who work – directly or indirectly – for formal sector enterprises. Some populations, such as widows, orphans, and the elderly, are neither protected by the salary of the breadwinner nor by any other family protection; these groups must be protected by tax-based social assistance (*11*).

In principle and according to the International Labor Organization (ILO) (*11*), informal sector workers are employed in a (micro-) enterprise that has the following characteristics: the owner is personally liable for gains and losses (the enterprise is unincorporated); absence of full and written accounts; and the enterprise has fewer than ten continuous employees. Apart from informal enterprises, there are also informal labor-relations, signifying the absence of written labor contracts. All of these informal (sector) workers have very different employment conditions that have a direct impact on their social health security needs and on how they organize security support systems for themselves. According to the ILO (*11*), the main characteristics for the ideal types would entail the following:

Urban/rural. Urban informal workers tend to be more heterogeneous, so establishing associations for social security purposes (*e.g.* health) is more difficult. Urban workers tend to be more interested in housing than workers in rural areas, where space is more plentiful and building materials directly available. In such instances, rural informal sector workers (*e.g.* women) are considered to be much more interested in health issues than housing given the fact that in most developing countries health sector infrastructures in rural areas are often worse than in urban areas.

Self-employed/wage-earner. Self-employed workers are relatively better off and better organized than wage-earners, with the result that they are better candidates for successfully organizing financial and social security (including those related to health risk protection) for themselves in cooperatives or other producer organizations.

Resident/transient. Where people are working and living in a fixed place, they are more likely to build up the necessary trust to set up a social security scheme amongst themselves. Therefore, people working in the street economy of urban areas or circular migrants in rural areas are unlikely to be covered by social security.

Regular/casual. Most regular workers in the formal sector are covered by compulsory social insurance

schemes, but because of non-compliance many regular workers are not covered. Casual workers both in the formal and informal sectors have little chance of being protected by compulsory or voluntary social insurance schemes.

1.3. *Definition of the informal sector: A Tanzanian perspective*

According to the Integrated Labour Force Survey of 2000/2001 (*6*), the informal sector is considered a subset of household enterprises or unincorporated enterprises owned by households. Characteristically, the informal sector entails enterprises that are not separate legal entities, independent of the households or household members who own them. These enterprises do not have a complete set of accounts as would permit a clear distinction of production activities of the enterprises from other activities of their owners. Moreover, the identification of flows of income and capital between enterprises and owners of the enterprises may or may not involve paid labor, and activities may be carried out inside or outside the owners' home, where some of the goods or services of the business must originate. In the current study, this definition and the ILO's (*11*) conceptual forms of informal sector employees are used.

In Tanzania, the informal sector is increasingly becoming an important employer given new challenges posed by ongoing economic, social, and political reforms (*6,12*). Nationally, about 36% of male-headed households are involved in the informal sector economy, as compared to 32% of female-headed households (*6*). Although female employees constitute a significant but relatively small proportion in comparison to men in the informal sector, they more often than not find themselves in a peculiar state of vulnerability resulting from their social position in society, often exposing them to difficulties and poor access to health care services.

2. Methods

2.1. *Study design and sites*

This was a cross-sectional study conducted in four wards of Ilala District in the Dar es Salaam region between August 2005 and January 2006. Dar es Salaam was chosen because it has the highest proportion of households employed in the informal sector economy. According to the Integrated Labour Force Survey 2000/2001 (*6*), about 62% of households in Dar es Salaam are engaged in informal sector activities of one form or another.

2.2. *Stratification and sampling*

A multi-stage sampling procedure was used. The first stage involved purposeful selection of one district (Ilala district), followed by a stratified random sampling of four wards, two with urban characteristics and another two with rural characteristics. The third stage involved randomly selecting four villages/areas, one from each stratified ward. Since certain parts of the study share both rural and urban characteristics (semi rural/semi urban), geographical ward[1] boundaries were used to identify and locate appropriate study areas. This exercise was done in consultation with relevant authorities. The technique (Multistage sampling) was employed so as to ensure sampling efficiency and representativeness.

2.3. *Data collection techniques and tools*

This study used both qualitative and quantitative research methods. Qualitative techniques were used given their philosophical roots, which emphasize the importance of understanding social and cultural processes in shaping human behavior (*13*). The technique involved Focus Group Discussions (FGDs). The Swahili language was used for discussions, as it is common in the study areas. A quantitative method was implemented through administration of a structured questionnaire with close-ended questions. In consultation with key informants, participants were drawn from groups of men and women who are employed in informal sector activities. At the end of the study, 368 participants consented to be included in questionnaire interviews.

2.4. *Structured interviews*

Interviews were administered at the household level in consultation with community leaders (key informants) to help interviewers identify respondents who were specifically in the informal sector economy. The same mechanism was applied to determine participants for focus group discussions.

2.5. *Focus group discussions (FGDs)*

Focus group discussion sessions were conducted with groups of women and men who were employed in the informal sector economy. Discussions were intended to solicit views on experiences in terms of health care access, financial problems faced in attempts to access health care services, and strategies employed to cope with these problems. Both audio-taping and note-taking were used to collect information.

[1] A 'ward' is an administrative unit below a 'division'. The district is the highest administrative structure and its geographical coverage comprises a number of divisions and wards. Below wards are villages and 'hamlets'. A 'hamlet' is the lowest unit in the local government administrative structure.

In collaboration with key informants at the community level, FGD participants were purposely selected on the basis of their participation in the informal sector economy, their shared experiences and interests, knowledge of the subject under investigation, and willingness to participate in the discussions (*14*). A key informant was considered to be a member of the study population who offered to inform or educate the researcher on a given subject of investigation (*15*). In total, there were 16 discussion groups, four (4) from each ward. The discussion groups were stratified on the basis of age and gender.

In each ward, there were two groups of women and two groups of men differentiated by age and gender. Thus, there was one group of women 15-34 years of age and another group of men within the same age range. In addition, there was a group of women 35 years of age or older and a group of men with a similar age range. This type of stratification was done so as to give participants more freedom and flexibility to speak out about their life experiences. Each discussion group consisted of between 6-12 members and met for a period of between 1 and 1.5 h.

2.6. *Data management, processing, and analysis*

Qualitative data analysis was based on field experience. Familiarization of data was done by listening to the audio-taped information and reading through the notes and the transcripts. Codes were developed and both pre-determined and emerging themes were identified for thematic content analysis. Quantitative data, in contrast, was entered in the EPi-Info data set. Checks were made for consistency and amplitude errors and the data were transferred to STATA version 9.2 for descriptive analysis.

2.7. *Ethical considerations*

All important ethical concerns were resolved prior to data collection. The research protocol was first submitted to the national ethics review body, under the auspices of the National Institute for Medical Research, for approval and issuance of research ethics clearance. Both verbal and written informed consent were obtained from the study participants before actual data collection.

3. Results

3.1. *Descriptive quantitative findings*

3.1.1. *Introduction*

This study sought to critically assess a household's experiences with malaria and the importance of financial access networks to bear illness-related costs among people employed in informal economic activities. It also sought to identify household coping strategies and community networks to bear the costs of unpredictable malaria outbreaks. This is in line with the fact that they are not formally recognized by most health insurance schemes and other formal financial institutions due to insecurity inherent in the nature of their employment and the instability of their incomes.

3.1.2. *Socioeconomic and demographic characteristics of the study participants*

The study involved 368 participants drawn from four wards of Ilala district in the Dar es Salaam region. It was initially intended to have equal representation of men and women. At the end of the study however, men accounted for 49.45% (n = 182) while women accounted for 50.55% (n = 182). The mean monthly income for the study population was TShs 45,877 and there was no significant difference between rural and urban households. The mean age for rural households was 35.62 years while that for urban heads of households was 39.9 years.

On average, men represented a relatively higher proportion of participants who reported having a secondary education or higher. For example, out of 368 respondents only 7 reported having an education higher than the secondary level, and they were all men.

Analysis indicated that about 17% (n = 61) of the interviewees in rural and urban households reported having no formal education while 72.3% had received an education at the primary level. Overall, there were statistically significant differences ($P < 0.05$) between men and women in both rural and urban households in terms of educational level. Table 1 provides a summary of education levels of the study subjects.

3.1.3. *Forms of informal sector employment among the interviewed participants*

During analysis, two of the categories of informal sector employment (resident and transient) were omitted because all interviewees performed activities in the areas where they resided. Thus, two categories remained as shown in Table 2. The results are stratified by gender and area of residence. Of further note is the fact that while the total sample of the study consisted of 368 interviewees, analysis involved only 364 respondents (98.91%) since information on this question from four households was either ambiguous or missing, so it was omitted outright.

A Pearson Chi-Squared test indicated overall significant differences (taking the total sample into account) between men and women in terms of the forms of employment both in rural and urban households. A stratified gender analysis of both rural and urban areas indicated highly significant differences ($P < 0.001$) in terms of forms of employments. In urban households, for example, 70.16% (n = 72) of all respondents who reported being self-employed were men as compared

Table 1. Levels of education by gender and residence

RURAL			
Level of education	**Men**	**Women**	**Total**
No formal education	21.57% (*n* = 11)	22.73% (*n* = 30)	22.4% (*n* = 41)
Primary education	64.71% (*n* = 33)	74.24% (*n* = 98)	71.58% (*n* = 131)
Secondary education	9.8% (*n* = 5)	3.03% (*n* = 4)	4.92% (*n* = 9)
Tertiary education	3.92% (*n* = 2)	0.00% (*n* = 0)	1.09% (*n* = 2)
TOTAL	100% (*n* = 51)	100% (*n* = 132)	100% (*n* = 183)
	***P* < 0.028**		
URBAN			
Level of education	**Men**	**Women**	**Total**
No formal education	12.98% (*n* = 17)	5.56% (*n* = 3)	10.81% (*n* = 20)
Primary education	67.18% (*n* = 88)	87.04% (*n* = 47)	72.97% (*n* = 135)
Secondary education	16.03% (*n* = 21)	7.41% (*n* = 4)	13.52% (*n* = 25)
Tertiary education	3.82% (*n* = 5)	0.00% (*n* = 0)	2.7% (*n* = 5)
TOTAL	100% (*n* = 131)	100% (*n* = 54)	100% (*n* = 185)
	***P* < 0.042**		

Table 2. Informal sector employment by area of residence and gender

Type of employment	**Rural**	**Urban**	**Total**
Self-employed	78.33% (*n* = 141)	55.43% (*n* = 102)	66.76% (*n* = 243)
Wage earner	21.67% (*n* = 39)	44.57% (*n* = 82)	33.24% (*n* = 121)
TOTAL	100% (*n* = 180)	100% (*n* = 184)	100% (*n* = 364)
Type of employment	**Men**	**Women**	**Total**
Self-employed	68.13% (*n* = 124)	65.38% (*n* = 119)	66.76% (*n* = 243)
Wage earner	31.87% (*n* = 58)	34.62% (*n* = 63)	33.24% (*n* = 121)
TOTAL	100% (*n* = 182)	100% (*n* = 182)	100% (*n* = 364)

to only 29.41% (*n* = 30) who were women. In rural households, in contrast, women constituted a higher proportion (87.39%, *n* = 123) of those who reported being self-employed compared to 12.61% of men (*n* = 18) (*P* < 0.001).

3.1.4. *Percent of those who had malaria in the previous 14 days*

Much as the study sought to understand the extent to which lack of financial security as a result of not being employed in the formal sector can affect access to health services, understanding the level of knowledge of malaria among study participants was critical. Accordingly, lack of formal employment, which limits access to formal recognition by organized health insurance firms, was hypothesized to be one way of limiting the poor's access to essential health services.

As measured by important signs and symptoms, knowledge of malaria was greater (93%) and did not differ significantly between rural and urban households. Furthermore, about 21% of study participants experienced a malaria outbreak in their household. Table 3 summarizes the findings for rural and urban areas and for both genders.

As is apparent from the table, only 20.65% of all 368 participants (*n* = 76) reported an outbreak of malaria in their households 14 days prior to the date of the interview. The study confirms significant differences (*P* < 0.05) between men (35.53%) and women (64.47%) and between rural and urban areas, with rural households reporting more cases of the disease (75%) than urban ones (25%).

Table 3. Those who had malaria in the previous 14 days

Gender	**Rural**	**Urban**	**TOTAL**
Men	26.32% (*n* = 15)	63.16% (*n* = 12)	35.53% (*n* = 27)
Women	73.63% (*n* = 42)	36.84% (*n* = 7)	64.47% (*n* = 49)
TOTAL	100% (*n* = 57)	100% (*n* = 19)	100% (*n* = 76)
	***P* < 0.004**		

When the data were divided into rural and urban areas, women in rural households bore a greater burden of malaria than men. The picture in urban households differed since men experienced more outbreaks of malaria than women. This finding, though seemingly complex, can partly be explained by the fact that in most traditional African households in rural areas women shoulder a double (if not triple) work load of caring for children and caring for the entire family (despite their special reproductive health care needs). This phenomenon may partly increase women's exposure to mosquito bites within and without their homes in their efforts to ensure that households are

provided with both needed health care and other resources to survive.

In urban areas, in contrast, higher prevalence among men may be due to their exposure to outside chores that are related to both working long hours for a living (and sometimes at night, as much domestic work is done by women) and their almost unrestricted movements outside their homes at night to participate in different leisure activities.

3.1.5. *Number of malaria outbreaks by gender and area of residence*

Frequency or recurring patterns of illness (in this case, malaria) have direct implications on costs. Without adequate mechanisms of financial risk protection, the effects of illness especially among low income earners may be fatal. Table 4 summarizes and compares reported outbreaks of malaria between the two genders.

3.1.6. *Hospitalization by gender and area of residence*

Out of the 21% (n = 76) of interviewees who reported an outbreak of malaria in the previous two weeks, only 15.8% of cases (n = 12) required hospitalization. Though the difference was not statistically significant, there was a higher rate of hospitalization in rural households (17.54%, n = 10) than in urban households (10.53%, n = 2). The rate of hospitalization among women was 16.33% (n = 8) while among men it was 14.81% (n = 4).

Stratified analysis by area of residence revealed a statistically significant difference ($P < 0.05$) between men and women in terms of hospitalization rates. Out of a total of 19 cases of malaria in urban households, all of those that required hospitalization (28.57%, n = 2) were women.

In rural households (where 59 interviewees reported an outbreak of malaria in their households), out of 15 reported cases the rate of hospitalization among men was 26.67% (n = 4) while it was 14.29% among women (n = 6). Gender differences within rural households were, however, not statistically significant.

3.1.7. *Health-seeking behavior*

Health-seeking behavior was of considerable interest in this study because evidence is limited concerning access to and utilization of health services among informal sector employees in developing countries. A majority of people working in the informal sector largely depend on government/public health services, with women reporting more use of health care than men (Table 5). This 'public-facilities-dependence-pattern' did not differ between rural and urban areas or between women and men.

Health-seeking behavior may be affected by a multitude of factors ranging from a household's socioeconomic characteristics, perceived quality of health care services, and other 'access' barriers such as distance to a health facility. This study revealed that rural households are on average located further away

Table 4. Reported outbreaks of malaria in the previous fourteen days prior to the interview

A: No. of outbreaks	Men	Women	Total
1	37.04% (n = 10)	57.14% (n = 28)	50% (n = 38)
2	51.85% (n = 14)	38.78% (n = 19)	43.42% (n = 33)
3	7.41% (n = 2)	4.08% (n = 2)	5.26% (n = 4)
4	3.70% (n = 1)	0.00% (n = 0)	1.32% (n = 1)
TOTAL	100% (n = 27)	100% (n = 49)	100% (n = 76)
B: No. of outbreaks	**Rural**	**Urban**	**Total**
1	45.62% (n = 26)	63.16% (n = 12)	50% (n = 38)
2	47.37% (n = 27)	31.58% (n = 6)	43.42% (n = 33)
3	5.26% (n = 3)	5.26% (n = 1)	5.26% (n = 4)
4	1.75% (n = 1)	0.00% (n = 0)	1.32% (n = 1)
TOTAL	100% (n = 57)	100% (n = 19)	100% (n = 76)

Table 5. Proportion of men and women and the source of health care from which they sought care for a malaria outbreak in the previous two weeks

Source of care	Men	Women	TOTAL
Government pharmacy	74.08% (n = 18)	73.58% (n = 37)	72.37% (n = 55)
Government health center	3.70% (n = 1)	3.77% (n = 2)	3.95% (n = 3)
Government hospital	3.70% (n = 1)	5.66% (n = 3)	5.26% (n = 4)
Private health center	3.70% (n = 1)	0% (n = 0)	1.32% (n = 1)
Private hospital	7.41% (n = 4)	16.98% (n = 6)	14.47% (n = 10)
Traditional healer	7.41% (n = 2)	0% (n = 1)	2.63% (n = 3)
TOTAL	100% (n = 27)	100% (n = 49)	100% (n = 76)

from health facilities (health centers and hospitals) than their urban counterparts. Arguably, this may represent a barrier to seeking health care especially when costs of transport and opportunity costs of time (as a result of walking long distances) are taken into account. Table 6 presents the results by comparing rural and urban households' proximity to a nearby health center/ hospital.

3.1.8. *Coping strategies for malaria-associated costs*

As has been generally indicated in preceding sections, most of the heads of household interviewed had either limited access to formal financial institutions or had very limited cash profits as would allow bank savings.

Moreover, among those who reported an outbreak of malaria in their households, none reported being a beneficiary of any form of health care insurance. Though bank savings is not the only feasible option to survive a catastrophic event resulting from malaria, evidence is surfacing to indicate that such savings are a potentially viable and effective tool among people who are not considered 'insurable' by health insurance companies (both private and public) or who are not considered creditworthy by other lending (financial) institutions. In this study, participants identified a number of options that were adapted and adopted accordingly when financial costs related to malaria were considerable (Table 7).

3.1.9. *Access to and membership in formal financial institutions*

Out of 368 participants, only 27.99% (n = 103) had an active bank account at a formal financial institution (such as a Micro-finance institution). Not surprisingly, though, interviewees from urban households reported a significantly higher proportion ($P < 0.01$) of members with an active savings account at a formal financial institution at the time of the interview.

Of all 103 interviewees who reported having a bank account, those from urban households accounted for 64.08% (n = 66) while those from rural households accounted for 35.92% (n = 37). This may be explained by the tendency of many of these organizations to be concentrated in urban areas rather than in rural areas. The findings further highlight significant gender differences both among rural and urban households. In rural households, for example, about 63.64% of women (n = 21) had an active bank account compared to 22.86% of men (n = 16) ($P < 0.05$).

In urban households, the picture is reversed in that a significantly higher proportion of men (77.14%, n = 54) had a bank account compared to women (36.36%, n = 12) ($P < 0.05$). Among those who reported an outbreak of malaria (20.65%, n = 76) in the 14 days prior to the date of the interview, only 13.16% of interviewed heads of household (n = 10) said that they had an active bank account.

Though the significance of the differences between rural and urban areas and between both genders could not be tested due to limitations imposed by the size of the sub-sample (n = 10), calculated proportions indicated that among those who reported an outbreak of malaria in their households, women (80%, n = 8) had a higher participation in networks with formal financial institutions. Unexpectedly, most were from rural households where bank facilities are somewhat wanting.

3.1.10. *Membership in informal savings groups*

Informal networks to secure financial services were highlighted as an important coping strategy for people employed in the informal sector especially when they were hit by an outbreak of malaria in their households. Figure 1 highlights some of the findings and compares households' participation by area of residence.

In total, more than 80% of the study participants

Table 6. Distance to a nearby health center/hospital

Distance	Rural	Urban	TOTAL
Within 5 km	45.61% (n = 26)	84.21% (n = 16)	55.26% (n = 42)
10 km	50.88% (n = 29)	15.79% (n = 3)	42.11% (n = 32)
More than 10 km	3.5% (n = 2)	0.00% (n = 0)	2.63% (n = 2)
TOTAL	100% (n = 57)	100% (n = 19)	100% (n = 76)

Table 7. Coping strategies to bear malaria-related costs

Coping strategy	Rural		Urban		TOTAL
	men	women	men	women	
Borrowed money from informal credit association	13.33% (n = 2)	35.71% (n = 15)	41.67% (n = 5)	42.86% (n = 3)	32.89% (n = 25)
Sought assistance from employer	0.00% (n = 0)	4.76% (n = 2)	8.33% (n = 1)	0.00% (n = 0)	3.95% (n = 3)
Sought assitance from relatives	60% (n = 9)	42.86% (n = 18)	16.67% (n = 2)	42.86% (n = 3)	42.11% (n = 32)
Borrowed from friends/neighbors	26.67% (n = 4)	16.86% (n = 7)	33.33% (n = 4)	14.28% (n = 1)	21.05% (n = 16)
TOTAL	100% (n = 15)	100% (n = 42)	100% (n = 12)	100% (n = 7)	100% (n = 76)

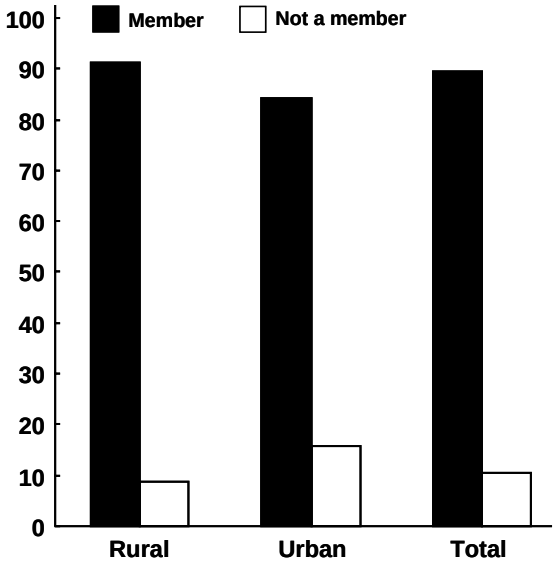

Figure 1. Membership in informal savings and credit organizations.

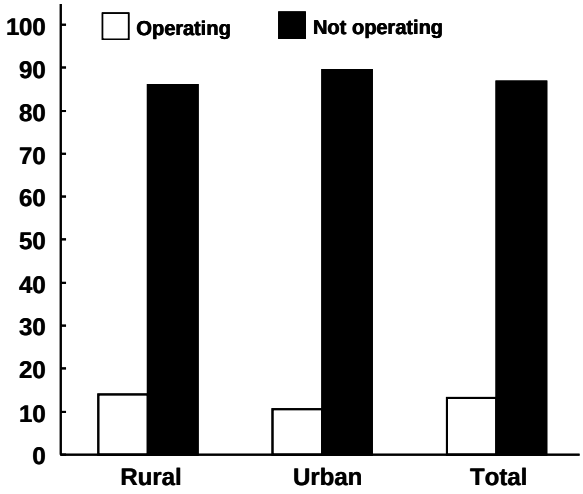

Figure 2. Proportion of rural and urban residents with an active savings account at a formal financial institution.

participated in some kind(s) of informal financial arrangements. Though evidence on the feasibility and sustainability of these arrangements is limited, this finding indicates that relevant authorities should consider the formally unemployed to be creditworthy and amenable to mainstreaming into formal structures of financial credit systems. This is crucial because the current state of affairs is such that people who are in the informal employment sector have extremely limited participation in formal financial banking systems where loans/credit can be obtained.

Though further research remains, the observed pattern may partly be explained by their (employees in the informal sector) limited willingness, or total lack thereof, to participate in and/or inability to afford banking services. Traditionally, most formal financial institutions prefer to deal with the formally employed rather than the unemployed.

The economic rationale for this tendency is related to the need to reduce transaction costs and uncertainty about the creditworthiness of the poor and informally employed. Figure 2 highlights the proportion of study participants with a savings account at a formal financial institution.

3.2. *Findings based on qualitative data*

3.2.1. *Perception of malaria as a health risk requiring adequate mechanisms of financial protection*

The majority of participants confirmed that the disease (malaria) negatively impacted the day-to-day social and economic activities of the household's members.

"On all fronts, malaria has had a devastating effect on our lives both at the household and community levels. When one member of the household is hit by recurring outbreaks of malaria, this implies that other productive economic activities have to be foregone and sometimes even limited financial resources have to be diverted towards bearing the costs of treating the ill person." (urban female FGD participant)

Although malaria is perceived as catastrophic both socially and economically, discussion sessions have consistently confirmed a higher level of awareness of the direct and indirect effects of redefining households' decisions in allocating financial resources. In some extreme scenarios, money that was initially set aside to pay for, say, children's school fees had to be re-allocated (diverted) to bear the costs of treatment.

"Most of us are actually poor, but there are some of us who are even poorer. It takes one or two outbreaks of malaria for these households to completely fail to bear some costs of education such as buying textbooks. Thank the government that primary education is provided freely, but children need not go to school hungry. In most poor households, they can afford only one meal a day but it is of poor quality and sometimes not enough meet actual nutritional requirements per person per day. In essence, the point is not about diverting financial resources to bear the cost of treatment but that there is sometimes no other way but to prioritize." (rural male participant)

3.2.2. *Hardship in relation to households' efforts to seek medical treatment*

While frequent malaria outbreaks have consistently been cited as one way poor households are drawn deeper into a medical poverty trap, additional hardships, and especially those related to looking for medical treatment, had been mentioned. This is even

more noticeable among mothers who spend much of their time making periodic trips to pharmacies and health centers/hospitals to seek care for themselves or other family household members, and especially infants and children under five. One participant, for example, pointed out that:

"In a situation when you do not have money to take your child to a nearby private health facility or buy medicine to bring the child's fever down, you are forced to walk long distances to health centers and sometimes you just leave home without even eating breakfast. After arriving at the facility, you then wait too long for someone to see you. Upon returning home, you are hungry and exhausted but you have to deal with other domestic chores such as collecting firewood, fetching water, and cooking for the rest of the household. Sometimes you do not have enough sleep because you have to monitor the child's temperature as a result of a malarial fever. All this means that your health weakens day after day." (urban female participant)

The agony due to death of a loved one as a result of malaria has also been consistently noted as a hardship.

"Several times, deaths have caused psychological hardships for families who are already struggling with the heavy burdens of poverty. The hardship is even worse when the death involves the household's primary breadwinner." (urban female participant)

Inability to hire private transport or the potential unavailability of such services especially in rural areas has resulted in a number of child deaths on the way to health facilities.

"You know, when a child has 'degedege' (literally meaning convulsions), there are still a few people who believe that a child must be 'prepared' by a traditional healer or just given a traditional medicine before being taken to the hospital. In most cases, this delays the process of receiving appropriate medical care and complicates the illness, sometimes leading to death. We have seen and read in the papers of children dying after just arriving at the health facility or dying on the way to the hospital especially when receiving available care means walking a long distance." (urban male participant)

3.2.3. *Willingness to borrow money from formal financial institutions to bear the costs of illness*

FGD sessions indicated that a majority of participants noted the importance of being networked with formal financial institutions both to help them strengthen their capital base as well as to allow them to use financial resources to respond to a catastrophic event resulting from an outbreak of malaria. A major limitation that was consistently identified as hindering access to formal financial institutions was the inability to meet the eligibility criteria that most lending institutions require to be considered creditworthy.

"Some of us have tried several times to ask the bank people about the possibility of taking out small loans from their banks. But the criteria that they always give mean that a bank is not the right place to go if you do not have stamped papers from an employer in the formal sector or if you do not possess assets such as a house or a car. And you know most of us have no chance of owning these." (rural female participant in an FGD)

"If they decided to give us a loan, we would never use the money for one-off events like a funeral or wedding. Instead, they must know that we are able to invest the money in economic activities; after making a profit, money can be allotted to normal expenditures including bearing the costs of illnesses such as malaria." (urban female participant in an urban FGD session)

While loans can essentially be used to enhance or improve economic enterprises, they can also be used as a 'malaria shock absorber', *i.e.* the impact on both the health of the members of the affected household as well as on the household's potential economic ability to disentangle it from the medical poverty trap.

3.2.4. *Borrowing from friends and neighbors as a coping strategy*

Most households that fail to bear the costs of malaria treatment, and especially when an outbreak requires hospitalization, find themselves in great debt as they try to bear the costs of daily living and other financial burdens as a result of a member of the household falling ill. Indebtedness, poverty, and illness further complicate their lives as they struggle to deal with the triple burden of disease, poverty, and the obligations to repay the loan/debt. One participant, for example, observed that:

"Due to persistent indebtedness as a result of our children's illness, we frequently find ourselves unable to meet even the family's most basic nutritional needs… when a child is so poorly fed, even a slight fever can take his or her life." (rural female participant)

3.2.5. *Selling labor as a coping strategy*

Selling labor begins as a result of three causes. First is the need to supplement household income to meet daily needs, second is the unpredictable nature of the need to bear illness-related costs as a result of malaria, and third is the repayment obligations created by indebtedness. As cited by one participant,

"To meet loan/credit repayment obligations, one has to pay dearly in kind. This may mean either working on the lender's farm or giving him produce equivalent to the money borrowed. In most cases, however, the payment is worth more than the original amount of money borrowed." (rural male participant)

3.2.6. *Building 'trust' networks with shop owners and health workers at private health facilities and pharmacies as a coping strategy to bear malaria-related costs*

Discussion sessions revealed that despite the growing trend of self-medication, some households have established stable credit patterns that allow them to obtain malaria drugs from nearby pharmacies under the condition that they will pay immediately once they have the money. This is especially true in urban areas, where there are relatively well-established networks of shops and private pharmacies/drug stores. Obviously, however, such lending depends on one's residency, *i.e.* such lending is only possible when one is known to have resided in the area for a reasonable number of years (normally about 5+ years).

The economic rationale for working with private facilities and pharmacies originates because of the unpredictability of malaria outbreaks, especially among children under five. One participant commented that:

"We know that children under five years of age are supposed to receive free treatment at government health facilities, but sometimes a child unexpectedly falls ill and you need to hire a private taxi to quickly reach a nearby health facility. The cost may be more than Tshs. 4,000/=, and there is no guarantee that you will have the money at that time… So if you are known and trusted by one or two of the private health facilities, you can quickly take the child to receive treatment and stop at a nearby shop/pharmacy to obtain drugs prescribed by the doctor but that are not available at the hospital." (urban female participant)

3.2.7. *Informal credit networks as a source of money for malaria treatment*

Informal networks of both men and women have consistently been mentioned as a source of money to bear malaria-related costs.

"We are involved in what is widely known as 'Upatu'- (a Swahili word, literally meaning a form of savings and credit arrangement in which a group of people contribute a specified amount of money to their fellow member(s) on a rotating basis, one member after another)."

"...When your turn comes, life is a little more relaxed... well, it may be little money, but because you already have a small business going, you have the time to expand the capital base of your business, especially when no one in the family is sick. The money may also be used to cover any illness-related costs if, unfortunately, someone falls ills at the same time when the money is due." (urban female participant)

Criteria for membership eligibility in this form of savings-and borrowing ('*Upatu*') is framed so that accountability is based on the principles of trust and reciprocity, as there are no formal contractual agreements among the members. Furthermore, use of *upatu* was consistently more common among women than men. Not apparent, however, is whether or not men are more averse than women to the core principles ('trust' and 'reciprocity') defining *Upatu*-membership. Longitudinal studies are needed to quantify the patterns observed.

3.2.8. *Awareness of the existence of established forms of Health insurance (e.g. Community Health Insurance Fund)*

Though the study did not initially intend to inquire about the existence of Community health insurance around the country, discussions did reveal that study participants were aware of the existence of community health insurance in the country but were not sure whether it did operate in Dar es Salaam region but not sure if it operated in the Dar es Salaam region. While the scheme was not available at the time of this study, many participants emphasized the need to be integrated if the scheme operated in the region or to be provided with appropriate information on other established forms of health insurance. This confirms the willingness of informal sector employees to pay for community health insurance.

3.2.9. *Recommendations to help informal sector employees reduce their barriers to seeking modern health care services*

Though examination of what works and what does not is crucial, FGD participants proposed a number of recommendations as a way to ensure the financial security to be able to bear the costs of health care access and utilization in the event of a malaria outbreak. The following is a summary of points cited consistently in discussion sessions. Education and information about health insurance should be provided, and organizations providing these services need to be 'community grown'.

Formal financial institutions such as health insurance companies (both private and public) and banks need to introduce flexibility in the ways in which informal sector workers can obtain health insurance membership. Similar flexibility is needed when

borrowing money from banks to help cope with both the costs of ill health and other basic needs.

The often-heard pronouncement that the country's (Tanzania) economy is growing at a relatively good pace should translate into more jobs to enable people in informal sector employment to be formally employed and consequently covered by available health insurance schemes.

Finally, tax contributions from the formally employed and other sources should be earmarked to subsidize health care costs for the poor in informal sector employment and the unemployed. The earmarked taxes should form a type of insurance fund that is targeted to specific, common illnesses afflicting the poor (anemic malaria for children under five and pregnant mothers, cerebral malaria, *etc*.) since they often need hospitalization.

4. Discussion

The current analysis was driven by the recognition of the importance of informal sector employees in the context of a developing country like Tanzania in relation to their need in gain access to modern health care services.

Like in many developing countries, the informal sector in Tanzania is growing at a rapid pace, and its contribution to the overall economic situation cannot be underestimated. Their lack of recognition in the formal credit systems and formal health insurance arrangements and formal health insurance arrangements make them more vulnerable to financial risks of illness especially in a country where diseases such as malaria are so prevalent.

This study has provided critical insights regarding informal sector employment and practicalities in bearing the financial costs of gaining access to essential medical care in times of malaria outbreaks. Although there are different coping strategies among informal sector employees, informal savings networks are significant in not only helping households to cope with financial shocks caused by malaria but also in overall attempts by the poor (informally employed and unemployed) to disentangle themselves from the medical poverty trap.

A further finding has been that informal sector employees are willing to both be covered by existing forms of health insurance and also be integrated into the formal banking system. The policy implications of this finding point to the need to review existing eligibility criteria that bar the poor and particularly informal sector employees from gaining access to credit services provided by banks and from being covered by formal health insurance arrangements.

Even when there was a greater willingness to both be integrated into formal banking systems and to be covered by formal insurance arrangements, there was an apparent uneven distribution of these facilities between rural and urban areas. This is, however, not surprising because of the economic rationale inherent in the operations of banking and health insurance businesses. That is, demand factors will always determine where services are located/provided. In other words, urban more than rural areas are considered to be attractive to investors because of the presumed greater willingness and ability to pay of a higher proportion of the inhabitants.

Analysis also revealed that malaria is considered to be both a health and an economic risk. The coping strategies that were identified indicated that catastrophic shocks caused by illness are directly associated with economic vulnerability, which translates into households' inability to actively engage in productive economic activities and their failure to respond to financial shocks caused by illnesses. This finding is consistent with the concept by Whitehead *et al.* (*2*) of the 'medical poverty trap'.

Although there were significant differences ($P < 0.05$) between rural and urban households and between men and women in terms of forms of employment, educational achievements, prevalence of malaria, and hospitalization rates, mechanisms of coping with malaria-related costs of treatment were not, however, statistically significant. This explains why literature on the disposition of informal sector employees is in relative agreement and the employees thus respond to the financial crises caused by illness in more or less similar ways.

Rural households on average appear to travel longer distances to health facilities than their urban counterparts. This implies that while both rural and urban households face more or less the same level of vulnerability to outbreaks of malaria, rural residents are faced with yet another burden of walking longer distances to health facilities along with negative consequences of increased costs of transport.

There is also another issue of the possible higher opportunity costs due to time spent walking to facilities and possibly waiting too long before being attended by health workers. This again highlights the need for targeted efforts towards equitable distribution of health facilities and other medical resources in accordance with need.

The finding that a statistically significant ($P < 0.05$) proportion of women in rural areas came under the category of those who are 'self-employed' suggests increased decision-making ability among rural women. In terms of policy implications, targeted efforts are needed to unleash the full potential of women as active players in economic production as well as to encourage appropriate decision-making regarding their health and that of other members of the households.

The cross-sectional nature of the current study prevented the determination of any causal relationships

between the variables employed in the study. Potential research hypotheses, however, can be formulated for testing in the Tanzanian health insurance market, which is still in its infancy. In addition, the mean monthly incomes of the households may be grossly underestimated. This may be because of the fact that most people, and especially those in developing countries, are reluctant to reveal their real income and there are no reliable mechanisms (like an efficient and reliable tax information system) by which peoples' real income can be tracked. Although not used in the current study, the best way to obtain a 'proxy' for this information would be to collect data on household assets and compute a wealth index.

While there are already government efforts to subsidize the majority of people (the poor in formal and informal systems and the unemployed) through tax-based expenditures on health care, tax-based financing of health care is not only inadequate but may also be poorly or ineffectively targeted. It may thus end up benefiting those in the formal sector who are able to pay for their health care costs through different 'open' and 'employer-based' health insurance mechanisms. Such distorted cross-subsidization is regressive and therefore inequitable.

Since not all people in the informal sector are essentially poor, critical willingness and ability-to-pay studies (ability to pay for formal health insurance) must be conducted among the people who are in informal sector employment. In this event, a research hypothesis could be that people employed in the informal sector have different levels of willingness and ability to pay for health insurance services.

Even though there were signs of willingness to pay for formal health insurance (levels of willingness and ability to pay for the poor and non-poor is not known), any policy decision to incorporate informal sector employees should be carefully designed to take into account factors such as administrative costs due to difficulties in monitoring membership, adverse selection among potential members, and perverse incentives inherent in health care systems that may discourage enrollment of those who have already shown a willingness to participate.

5. Conclusions

The qualitative findings, descriptive figures, and statistics as shown thus far suggest some basic facts, some a little bit surprising, but most are fairly consistent with the established body of evidence. They do, nonetheless, lead to two conclusions.

First the consistent nature of the current findings with those of Whitehead *et al.* (*2*), in that some coping strategies such as borrowing from friends and neighbors have a greater tendency to drag households further into medical poverty, suggests that there is a need for health systems to respond by supporting communities' efforts to establish sustainable financial networks. Similarly, these systems must work towards removing perverse incentives that may prevent those working in the informal sector from taking advantage of available health insurance arrangements. Existing protection and health insurance mechanisms available in Tanzania must be reconfigured.

Second, as observed by the World Health Organization (*16*) when referring to distribution of health facilities in most Sub-Saharan African countries, the current study found that rural households were on average further away from health facilities than their urban counterparts. The policy implications of this finding are that health facilities in Tanzania are either unevenly distributed between rural and urban areas or that those facilities close to consumers are perceived as being unable to provide the quality of care expected by users and potential users. To this end, efforts are necessary to ensure that health facilities are provided with the resources (human resources, drugs, equipment, *etc.*) needed to effectively provide quality care and they must be nearby as prescribed by national and international health policy standards. While attempting to achieve this goal amidst competing priorities and limited health care resources may sound idealistic, 'earmarking' some tax resources and 'targeting' the rural poor represents an optimal short-term solution.

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References

1. Arthin-Tenkorang D. Health insurance for the informal sector in Africa: Design features, risk protection and resource Mobilization. In: Health, Nutrition, and Population discussion paper (Preker AS, ed.). World Bank publications, Washington, DC, USA, 2001.
2. Whitehead M, Dahlgren G, Evans T. Equity and health sector reforms: can low-income countries escape the medical poverty trap? Lancet. 2001; 358:833-836.
3. Abel-Smith B. Financing health services in developing

countries: the options. NU News on Health Care in Developing Countries. 1993; 7:8-15.
4. Brown C, Churchill C. Insurance provision for low income communities: Part 2: Initial lessons from micro-insurance experiments for the poor. USAID-Microenterprise Best Practices (MBP) Project, Washington, DC, USA, 2000.
5. ILO-SAAT. Social protection for the unorganized sector in India. A report prepared for UNDP under Technical Support Services-1. International Labour Office, Geneva, Switzerland, 1996.
6. United Republic of Tanzania. Integrated Labour Force Survey 2000/2001. National Bureau of Statistics, Dar es Salaam, Tanzania, 2002.
7. Letourny A. Community financing of health care. World Bank, Washington, DC, USA, 2003.
8. Standing H. Gender and equity in health sector reform programmes: a review. Health Policy Plan. 1997; 12:1-18.
9. Aday LA, Andersen R. Access to medical care in the U.S.: Who has it, Who doesn't? Pluribus Press, Inc., Chicago, IL, USA, 1984.
10. Hjortsberg CA, Mwikisa CN. Cost of access to health services in Zambia. Health Policy Plan. 2002; 17:71-72.
11. ILO. Social security for the informal sector: Issues, options and task ahead. Social Security Department, International Labour Office, Geneva, Switzerland, 1994.
12. United Republic of Tanzania. Household Budget Survey, 2000/2001. National Bureau of Statistics, Dar es Salaam, Tanzania, 2002.
13. Kirk J, Miller ML. Reliability and Validity of Qualitative Research. In: Qualitative Research Method Series. Sage Publications, Berkeley, CA, USA, 1998.
14. Morgan DL. Focus Group as Qualitative Research. Newbery Part Sage Publications, Berkeley, CA, USA, 1988.
15. Coreil J. Group interview methods in community health research. Med Anthropol. 1995; 16:193-210.
16. WHO. The World Health Report 2000 - Health systems: improving performance. WHO, Geneva, Switzerland, 2000.

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