

**INDOOR RESIDUAL SPRAYING (IRS) DISCOURSE FOR
MALARIA CONTROL PROGRAM IN TANZANIA: A
CASE OF TARIME DISTRICT**

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ABSTRACT

The thrust of this study emanated from the desire to fight against malaria which is among the major leading killer diseases in the country. Hence, mainly the study intended to understand on how past experience on promoting the use of ITNs (Insect Treat Nets) has influenced the Indoor Residual Spraying (IRS) in areas where IRS has been introduced. This study was conducted in Turwa Ward, Tarime District. The study used a non-experimental design in which cross-sectional method was employed. Primary data were collected through In-depth Interviews, Focus Group Discussions (FGD) using semi-structured questionnaires and checklist respectively. Secondary data were collected by reviewing a series of documents related to health promotion, health records and malaria control strategies from the village, ward and district levels, government and non- governmental organization and internet materials. Basically socio-economic factors (education and incomes) and demographic (age, sex, marital status) were cross tabulated and tested for their significances against the IRS implementation status of an individual (1= accepted IRS, 0=otherwise). Statistical Package for Social Science (SPSS) version 11 was used to process the data. Findings showed that education and marital status of respondents have an influence on compliance to the implementation of IRS. A minimum of primary education is enough to comprehend health promotion messages related to IRS for effective malaria control whereas income was observed not to play a huge role to affect the implementation of IRS because IRS was provided for free. On the other hand, married people were found to comply with the implementation of IRS compared to other categories of marital status. The study recommends that; health personnel and civil society organizations should be directly involved in promoting IRS at community levels so as to give clarification on challenging issues, evaluation on health promotion strategies to be or carried out should be done regularly before actual IRS

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Background Information

Malaria remains a major public problem in sub-Saharan Africa, with approximately 1 million deaths and more than 400 cases a year. In Tanzania, over 95% of the 37.4 million people are at risk for malaria infection (DFID, 2011). An approximate of 14-18 million clinical malaria cases in Tanzania are reported annually by public health services. Over 40% of all out-patient attendances are attributed to this disease. According to the Health Management Information System (HMIS), malaria is responsible for more than 50% of deaths among children under five years of age in health facilities and up to one-fifth of deaths among pregnant women. Records show that malaria prevalence in children aged 6 to 59 months in Mara region was 30.3% in 2007/2008(USAID, 2009)

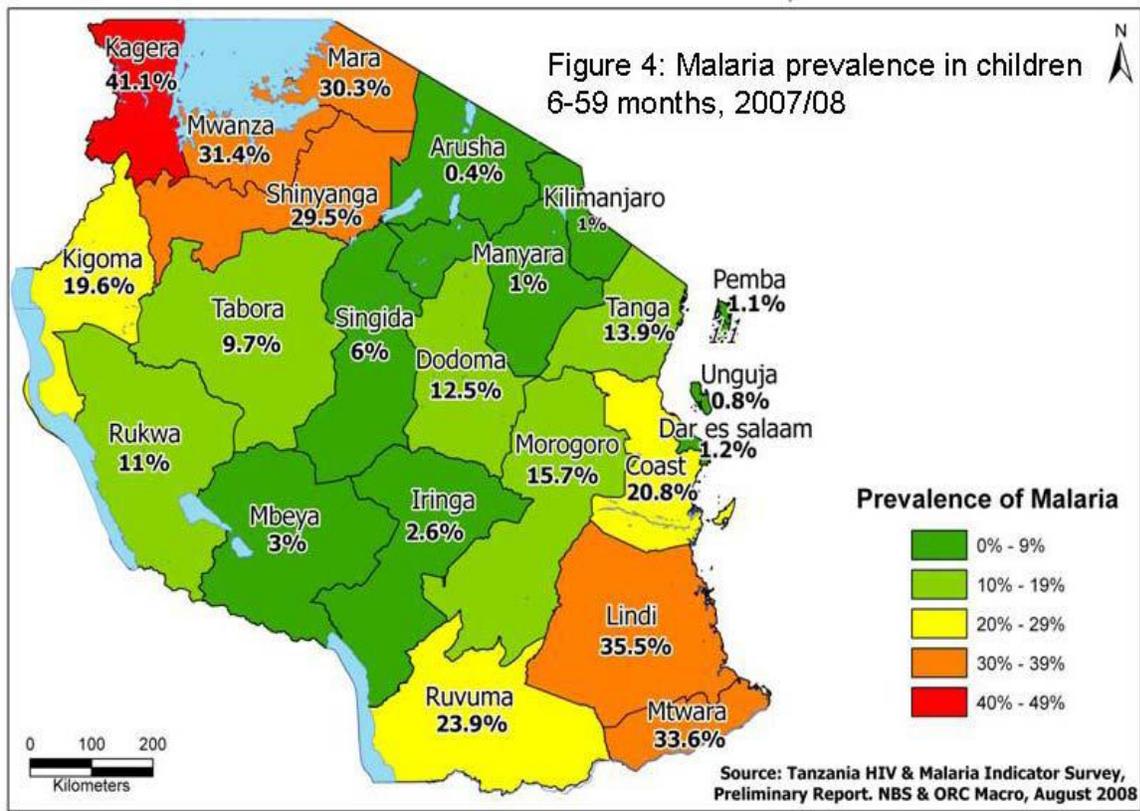


Figure 1: Prevalence of Malaria Source: USAID (2009)

Challenges Facing Malaria Control Strategies

To achieve suitable and significant results in the reduction of morbidity and mortality by reduction of malaria transmission is probably necessary to reduce parasite exposure to low levels. With the present interventions, this has not been achieved in the high transmission zones.

Low and inconsistency use of ITNs have been reported in most part of Africa (Fernando et al, 2009; Shah, 2010). In some parts of Lake Victoria ITNs have been used for fishing (Minakawa, 2008). While in Burkina Faso motivation for using mosquito nets in malaria endemic area has been reported to decrease (Toél et al, 2009). It has been reported in western Kenya that even when mosquito nets were given away for free, approximately 30% of them were not used;

likewise in southern Tanzania a year after free net distribution nets were found stored in their bags and had not been utilized by a number of household (Gamble *et al.*, 2006). Moreover, recent studies have shown that the primary healthcare approach does not work for malaria control and an integrated approach is required to accommodate all appropriate strategies (Makundi and Kitua, 2007).

The recent introduction of health sector reforms in Tanzania has shifted responsibilities for the implementation of disease control activities from the national level to district levels (CDC, 2012). Several studies reveal that even when access to ITNs is expanded many households do not use them (Baume *et al* 2007, Toél *et al* ,2009; Fernando *et al* , 2009; Shah, 2010, Brieger 2010, and Ruhago *et al* , 2011).

Moreover, high cost of Malaria treatment increasing resistance of cheap anti Malaria drugs such as chloroquine and sulfadoxide pyrimethamine, leading to frequent change of Malaria treatment guideline to a combination therapy in Tanzania (URT, 2003). Pairing with gaps in people's understanding of and knowledge about malaria, home medication with herbs or drugs purchased from shops is widespread in Tanzania, resulting in mismanagement of cases and delay in seeking care from health facilities (Makundi and Kitua, 2007); connecting this with low or inconsistency and negation to the use of ITNs ; there is a need to better understand how past experience on promoting ITNs has influenced compliance on IRS has been in areas where IRS has been introduced.

Material and Methods

The study was conducted in Turwa ward in Tarime District. This district is found in Mara Region Tanzania. The study covered two selected villages in the ward; namely Rebu and Nkende. In terms of contents, the study was focused on socio-economic and demographic dimensions influencing community participation in implementing the indoor residual spraying as a malaria control strategy in the district. The study area was selected because it is one of the areas which have high incidences of malaria infections and deaths (USAID, 2009; TDC,2010); and IRS program was implemented in this area so as to control malaria infections and deaths while another reason for selecting this area was the culture of the community.

Conceptual Framework

Household heads vary according to their demographic features such as age, level of education, sex, level of income and type or nature of occupation. These features shape the level of understanding and knowledge in general perspectives; they are also expected to determine much on the acceptance or non acceptance to health behavior and practices including IRS. However other factors such as sensitization and health education and promotion done by technical team implementing the IRS may build much trust on IRS exercise among the targeted population. Furthermore, acceptance or non acceptance of the community to IRS has to be influenced by community understanding of malaria etiology, its severity, advantages of IRS in controlling malaria infections. Figure (2) depicts below.

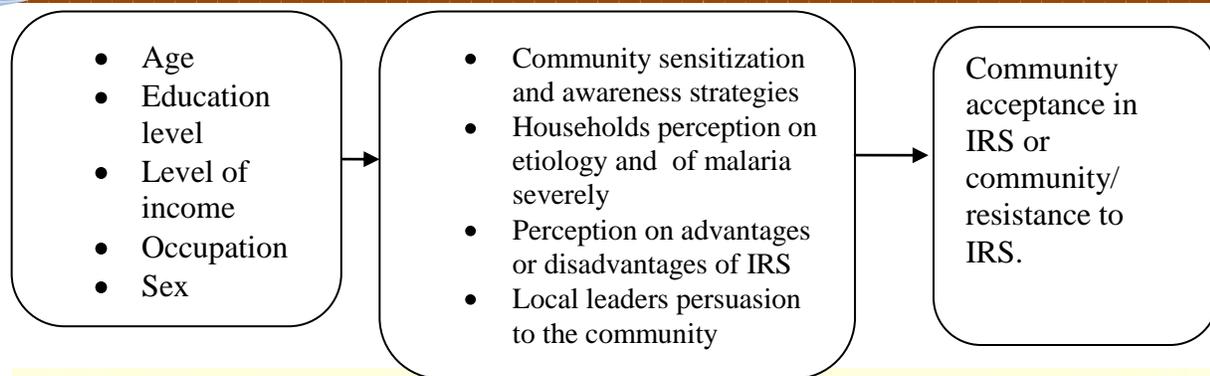


Figure 2: Conceptual Frame work of the Study design by authors
Source: Authors construct 2012

Type of Data and Sources

There were two types of data sources that were collected which are primary data and secondary data. Primary data were obtained directly from the field, through making a conversation between community members, clinical officers and community leaders. Researchers employed different methods such as questionnaires, key informant interviews, and focus group discussion in order to acquire necessary information patterning to the study. Secondary data were obtained from published and un-published materials such as reports, office reports, books and magazines.

Study Design

The study employed non-experimental design in which cross-sectional method was employed. The study was involved in asking questions to the representative sample of the population at a single point of time. This saved time compared to the longitudinal method that could take several months. Compared to longitudinal method, cross-sectional design covers big sample of the population within a short period of time because interviewed individuals cannot be re-interviewed. The study involved households, Village Executive Officer (VEO), Ward Executive Office (WEO), and District Malaria Coordinator in collecting primary information. These interviewees were targeted because they were expected to provide rich information on how the community was involved in IRS. Both probability and non-probability were used as techniques for sample selection. The sampling frame for this study involved all population from the two selected villages of Rebu and Nkende. The study's sampling unit was the households in the two wards. The sample size of this study was expected to comprise 70 respondents but due to unavoidable circumstances such as delegation of power for village leaders who had excuses from their duties, only 68 respondents were interviewed. Since this study was purely qualitative, 68 respondents were not obtained using any statistical formula; it was by researchers' discretion. This is accepted in social science research especially when it comes to qualitative studies (Sarantakos, 1997:157-158).

Data for this study were collected using a pre-tested semi-structured questionnaire. Pre-testing of questionnaires was done in villages not involved in this study. During data collection, informed verbal consent was asked from the respondent before interview, this was done so to all respondents. The collected data were processed and verified before analyzed. Data were edited to detect errors and omissions, classified before coded into numerals to make them easy for

analysis. Quantitative data collected were analyzed through SPSS including frequencies, mean and figures. Qualitative data collected through discussion with key informants and focus group discussion were analyzed by using content analysis through giving a summary of each topic discussed and thereafter identify the content of discussion.

RESULTS AND DISCUSSIONS

Socio-economic Characteristics of Respondents

46.2 % of the respondents were men and 53.8% were women; 81.5% of all respondents were married, 7.7% were single and 10.8% were widowed. This implies that that most of the respondents had families and women dominated the number of respondents in this study. In terms of respondents' occupations, 52.3% of the respondents were engaged in agricultural activities, 21.5% were civil servants and 26.2% were involved in both agriculture, medium and small-scale business as self employed. This signifies that most people in Turwa ward depend on agriculture as a main stay of their household economy. With regard to education, the study revealed that, 4.6% of the respondents had never attended school, 55.4% had acquired primary education level, 24.6% had a level of secondary education, 3.1% had attained post secondary school education level and 12.3% had attained college/university level of education. This implies that the population in the study area had adequate level of education to acquire necessary knowledge and skills for malaria control and prevention.

Community Awareness on Malaria Impacts

Findings showed that, 87.7% of the respondents acknowledged on being aware of malaria impact in the family economy while 12.3% of the respondents had no clear knowledge on malaria impacts with regard to their family economy. This implies that high numbers of the respondents had knowledge on malaria impacts to their economy though 15.4% did not use ITNs.

Table 1: Community Awareness on Malaria Impact

Awareness of malaria (n=63)	Frequency	Percent
Awareness of malaria impact	55	87.7
Not aware of malaria impacts	8	12.3
Use of mosquito nets(n=65)		
Use ITNs	55	84.6
Not use ITNs	10	15.4

Past experience on the Use of Insecticides Treated Mosquito Nets

ITNs have been the most common malaria controlling mechanism used in the study area. Findings showed that 84.6% of respondents interviewed reported to have used ITNs while 15.4% of them said that, they were not using ITNs. Comparing study results to the national level

coverage to ITNs use in the study is significant very high. This sharp increment has been due to the current free mosquito nets distributed under US President's Malaria Initiative (PMI) in most of developing countries, Tanzania being one of them. At a national level the coverage of ITNs use in Tanzania show that the percentage of households with at least one Insecticide Treated Net (ITN) has risen from the 2007 baseline of 36% to 64% in the 2009/10 Demographic Health Survey (DHS). The percentage of pregnant women sleeping under ITN has risen from the 2007 baseline figure of 23% to 57% in the 2009/10 DHS. Both the Pregnant Woman Voucher and the Under-five Catch up Campaign (U5CC) have contributed to these increases. Although pregnant women were not the intended beneficiaries of the U5CC, the re-distribution of nets within households has obviously resulted in a sharp increase in usage by pregnant women (NATNETS, 2012). On the other hand, Ruhago et al (2011) revealed that in Kisarawe district, ownership is 53% and use 42%. Households of the poorest socioeconomic quintile are the most deprived, with a pro-rich inequality.

IRS Campaign and Implementation in the Study Area

According to Malaria District Coordinator and Ward Executive Officer, only two seminars were conducted in Turwa ward and these seminars were provided by non-government organizations called Research Triangle Institute (RTI) in collaboration with the Ministry of Health and PAUTA (Pambana na Ukimwi Tarime). Training was provided to VEOs, WEOs and Village Chairpersons (Local community leaders). Here, an idea was that by training the listed above people who have political influence in their administrative areas; community members could be informed about all the necessary information related to IRS by those leaders through public community meeting. However, the expectations came in a reverse because the sensation on RIS by community leaders was not thoroughly done to the community. Literature shows that efforts to build local capacity for IRS activities have been ongoing in partnership. Local staff is involved throughout the IRS planning process with the targeted community, (USAID, 2009) but this was not the case in Turwa ward.

Findings from the study revealed that 72.3% of the respondents had not attended any community sensitization meetings. Only 27.7% attended community sensitization meetings. This is less than one third of all respondents interviewed. Reasons provided for not attending IRS community sensitization meeting were; lack of information (15%), lack of time (30%), ignorance of the organizers (45%) and failure to attend due to other reasons was 10%. (Table 2 below illustrates)

Table 2: Community Attendance to RIS Sensitization Meetings and Reasons for not attending the Meetings

Attendance to RIS Sensitization meetings	Percent
Not attended meeting	72.3
Attended meeting	27.7
Total	100
Reasons for not attending sensitization meetings	

Lack of information	15
Lack of time	30
Ignorance of the organizers	45
Other reasons	10
Total	100

Findings from Table 2 showed that 45% of the respondents just ignored the organizers while 30% lacked time to attend the meeting. This makes a total of 75% of all respondents who had no compelling reasons for not attending the meetings. This suggested that preparations on IRS sensitization and campaigns were not well assessed and planned as the FGD members narrated hereunder;

“Our leaders were the ones sensitizing the community on IRS. We had a lot of queries which they failed to clarify. We feared the side effects of the poison used for spraying our houses since no proper clarifications were provided!” Said a man in FGD

The above narration presents fear on IRS

“Our leaders are equally illiterate like us, what do you expect them to tell us? IRS is poisonous; we needed to be assured of our life by doctors and not these poor fellows. Besides some community members still negate to use ITNS. What do you expect when it comes to IRS?”! Another man added during the FGD

“How did these community leaders get trusted by RTI in handling such a sensitive intervention? RTI need to save costs, now see how expensive it has been. Less people accepted IRS, malaria control results expected is doubtful! Said a lady form ladies’ FGD in Nkende Village

“We all know that the breeding sites for mosquitoes are in the environment outside our houses. How comes that they want to spray inside our houses? Why not killing those breeding sites?” Said another lady in ladies’ FGD from Nkende village.

The above narration depicts mistrust of respondents to the knowledge of their leaders and malaria control strategies, it shows that ITN which is already known to majority of the community members and IRS which is not yet well known and accepted to some of the community members. They created their own negative reality on both ITNs and IRS. For example; *our leaders are equally illiterate like us, what do you expect them to tell us? IRS is*

poisonous; we needed to be assured of our life by doctors and not these poor fellows. Besides some community members still negate to use ITNS. What do you expect when it comes to IRS?”

The question here is “were the rapid appraisal made on the existing doubts on the use and efficiency of ITNs in controlling Malaria infections made? Were these doubts thoroughly cleared from the community? Literature shows that health education communication is one of the key components control and prevention. Serious obstacles in most disease control strategies emanates from lack of effective health information, education and communication programs (COHESA, 2010). It was learned from the FGD that lack of trust to community leaders led to poor community members’ attendance in sensitization meetings as well as non compliance in implementations of IRS. Past studies have shown that lack of proper logistics and preparations for IRS have been blamed to fail the interventions in places where IRS have been done. For example, lack of adequate training and practical guidance and supervision compromises the outcome of IRS in Kumi district-Uganda (Collins, 2003; Batega, 2003)

Households Sprayed Indoor Insecticides

Table 3 shows that, 53.8% of the respondents’ houses were sprayed with indoor insecticides but 46.2% of the respondents houses were not sprayed indoor insecticides. Comparing to the number of households sprayed with IRS and the community attendance in meetings, a clear correlation could be established where 72% of people interviewed did not attend IRS sensitization meetings. Poor attendance to sensitization meetings needed to be sensed as a warning alarm during the evaluation on the sensitizations done. The IRS promotion team was required to make a reflection on what could be the reasons for poor attendance as the situation signified a red light towards the emergency of resistance from the community from the very beginning; which needs to counteract before starting effective IRS. But RIT failed to read the signals. This was so because RIT did not evaluate the sensitization meetings before starting the actual exercise of IRS. Moreover, sensitization exercise was assigned to community leaders who also failed to analyze or ignored those signals.

Table 3: Number of Households Sprayed Indoor Insecticides

Household sprayed indoor insecticides	Frequency	Percent
Sprayed indoor insecticides	35	53.8
Not sprayed indoor insecticides	30	46.2
Total	65	100

Factors for Some Households Resistance to IRS

The result from the field showed that 51.7% of respondents believed that IRS has not succeeded due to poor government sensitization strategies, 27.6% due to lack of effective communication between the heads of households and IRS promotion team, while 13.8% supposed it was fear from IRS side effects and the rest 6.9% were of the view that it was due to resistance from household’s members. This showed that the information was not well communicated to the community members and as a result only about 54% of the community members accepted IRS in their houses thus causing the program to fail to reach its target.

Table 4: Limiting Factors of the Success of IRS

Limiting factors	Percent
Poor strategies used by the government	51.7
Lack of effective communication	27.6
Fear from IRS side effects	13.8
Resistance from household's members	6.9
Total	100

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The study concludes that socioeconomic and demographic features such as sex, age, level of education and income have insignificantly influenced the acceptance and compliance to IRS in the study area. Rather unresolved doubts on the use of ITNs and lack of effective preparations on IRS, particularly health education and communication between the community members and the promotion team which is coupled with weak government strategies on promoting IRS led to community resistance in complying with IRS. This was mainly due to fears which some of the community members had on the assumed side effects from chemicals used in IRS.

Recommendations

The following are the recommendations for future improvement on building community compliance to IRS program in Tarime and other parts of Tanzania.

Any program that need to be initiated by the local or central government or any non-government organizations benefiting the community like RTI, health education should be directly provided by health personnel to the communities so as to clarify any doubts concerning to the program from community members instead of using lay or village health workers or village leaders who lack backgrounds on health related issues

Prior to actual programme implementation, sensitization meetings, interactive radio talk shows and film van mobilizations need to be considered as they provide an opportunity to address misconceptions, rumors and clearly define the expected roles of the different stake holders during the spraying exercise.

Combining political/religious leaders with district technical staff and the private sector (Non Government Association and Civil Society Organizations) during interactive radio talk shows, enables clarification of issues, promotes positive attitudes towards the spraying exercise, and builds support and confidence for the IRS intervention among the community members.

Involvement of various leaders (political, religious and opinion) at the district and lower administrative levels through sensitization sessions should be considered since it promotes acceptability/ownership of the IRS exercise by the community.

Evaluation on health promotion carried out should be done before actual IRS

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