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Community participation and malaria prevention programs

Abstract

Malaria prevention and control programs in Zimbabwe have been hampered by low levels of cooperation by local communities. The study sought to assess the impact of community participation on cooperation in malaria prevention and control programs in Binga, Gokwe and Kariba districts in Zimbabwe.

This study is aimed at synthesizing, comparing and contrasting data from these three districts which are, arguably, the most prone to malaria in the country. An intensive and extensive review of related literature was done on the impact of community participation on cooperation in malaria prevention and control. The literature reviewed was focusing on three districts in the country, namely, Binga, Gokwe and Kariba. Typologies of participation were used for the measurement of levels of participation, while analysis was descriptive. Findings revealed that the levels of participation in malaria prevention and control programs in Binga and Gokwe were low, but high in Kariba. The findings from Kariba showed that where the level of community participation was high, cooperation in malaria prevention programs by communities was also high.

This study demonstrates the importance of community participation for the success of the malaria prevention and control programs. Although community participation was also very low in Binga and Gokwe malaria prevention and control programs, in Kariba, the program by Save the Children Fund (UK) showed high levels of participation which might have contributed to the high levels of cooperation by community members. Another important issue to emerge from the study is the effectiveness of environmental management methods of vector control, because they are community-based, hence, the success of the Save the Children Fund (UK) program in Binga and Kariba districts.

The study revealed that community participation at higher levels on the participation typologies contributes in a significant way to cooperative behavior by community members in malaria prevention and control programs. This is significant, since it improves the effectiveness of malaria control programs. Recommendations made include increased community participation in malaria prevention and control programs to enhance cooperation and educational programs on causes, prevention and treatment of malaria.

Keywords: community participation, malaria prevention, malaria control, cooperation.

JEL Classification: I12, I18, I14.

Introduction

Contemporary development thinking is pinning hopes on participatory development which is informed by the appreciation that development should be for people, about people and by people (Davids cited in Davids et al., 2005). Consequently, it becomes imperative that the cooperation of intended beneficiaries in development initiatives should be sought. However, malaria prevention and control programs in Zimbabwe have been hampered by low levels of cooperation by local communities. Sharma et al. (2007) assert that most organized vector control strategies require public support of one kind or another and the extent of people's cooperation can determine the success or failure of the entire campaign. An estimated 5 million of the country's 13.5 inhabitants are at risk of contracting malaria infections annually (Stokes and Steyn, 2006). Community participation has been hailed as the panacea to problems of low levels of cooperation in development programs.

The purpose of the study was to assess the impact of community participation on cooperation in malaria prevention and control programs in Binga, Gokwe and Kariba districts in Zimbabwe. It is often claimed that development failure can be traced back to lack of or low levels of cooperation in development initiatives by intended beneficiaries, hence, the need to investigate the perceived link between participation and commitment in development programs. Moralake et al. (2009) contend that we all need to step outside the predetermined management- and system-focused boxes, to develop proper people-centered not system-centered thinking. This calls for the meaningful involvement of people vulnerable to the malaria epidemic. But the big question remains as to whether community participation leads to cooperation in malaria prevention and control programs.

The study drew much of its data from selected case study reports of researches undertaken in Binga, Gokwe and Kariba districts in Zimbabwe. These districts were chosen, because they are located in malarious areas, with high cases of malaria being reported annually. Stokes and Steyn (2006) note that during the peak of the malaria season, that is, December to May, up to 40% of the patients treated at the mobile clinic that serves Mucheni village in

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the Binga district suffer from the disease. The area chosen is characterized by hot climate with maximum temperatures in excess of 40 degrees and minimum temperatures rarely falling below 17 degrees (Taylor, 1995).

Smith (cited in Makumbe, 1985) asserts that if development is to mean eradication of poverty, inequality and material deprivation, it must engage the involvement and mobilization of the poor. This is in contrast to the structural theories which focused on macro-level development, culminating uneven development or underdevelopment of development in powerless societies. Participatory development, influenced in part by thinkers such as Chambers, Korten and Sen, appreciates that individuals have freedoms which they cannot enjoy when deprived the space for them to thrive. Development, therefore, should be a process of expanding people's choices to do what they feel is of value to their lives (Sen, 2000).

However, it is surprising that people who are experiencing a myriad of problems can be seen to be not interested in development initiatives meant to solve their problems. This is where the motivation to undertake the current study stemmed from. Of particular interest were questions on levels of community participation and an assessment of the likely impact of these levels of community participation on cooperation in malaria prevention and control programs in the districts chosen.

Malaria prevention strategies are failing to yield intended results in some parts of Zimbabwe. The question that needs to be asked is does community participation has an impact on cooperation in malaria prevention and control programs. Another important question to ask pertains to the level of community participation in malaria prevention and control programs in Binga, Gokwe and Kariba districts. It is against this background that the researcher sought to assess the impact of community participation on cooperation in malaria prevention programs. Some scholars argue that no meaningful development can be realized if there is resistance to the development initiatives by the intended beneficiaries (Boyden, 2002; Sharma et al., 2007).

1. Rationale for participation

It is believed that participation can lead to acceptance of development projects by people in a given locality. The reason for their cooperation being that participation is said to make them feel they belong to a program. People feel they own the project which is good for sustainable development (Khosha cited in Davids et al., 2005). Participation can motivate people to accept responsibility for their

own development, thus promoting self-reliance (Burkey cited in Davids et al., 2005). It is further argued that participation can give women and other groups the opportunity to influence development initiatives in their communities (Gran cited in Davids et al., 2005).

Furthermore, Davids et al. (2005) argue that participation is an essential part of human growth, the development of self-confidence, pride, initiative, creativity, responsibility, cooperation, skills and capacity. Crucial to all these is to ensure the community takes responsibility for its development and that can only happen if the people cooperate, because without the commitment of the beneficiaries, there will be no empowerment, capacity-building, pride, creativity and all other perceived benefits of participation.

Moreover, Bowen (2008) argues that a community that fully participates in an enterprise is most likely to claim ownership of it, demonstrating the wisdom espoused in the enduring principle that "people support what they create". Bowen further states that projects based on needs identified by a local community will be valued by its citizens and will, consequently, have a likelihood of success. This further reinforces the perceived link between participation and cooperation in development projects. If the local community values empowerment, creativity and responsibility and view the project as delivering these, then, they are likely to cooperate or support it.

Participation taps into the energies and resources of individual citizens, providing a source of special insight, information, knowledge and experience, which contribute to the soundness of community solutions (Cahn and Cahn cited in Bowen, 2008). Citizen participation also helps to ensure a more equitable distribution of resources and to improve low-income communities (Gamble and Weil cited in Bowen, 2008).

However, none of these is possible if people in the communities do not commit their time and resources to the development programs envisioned to bring about improvement in human lives. Bowen (2008) further contends that when anti-poverty projects are initiated at the community level, the process can build strong consensus and commitment, leading to greater sustainability, greater adoption of new practices and better use of services.

2. Pitfalls of participation

Contrary to the glossy picture painted above, participation is difficult to operationalize. There is a gap between theory and practice and development agencies have gone on to conclude that participation

is an ideal and not a reality. It is also argued that participation is time-consuming which can result in delays in project start-up. Although there can never be too much participation, it can be very expensive in terms of time and resources to both organizers and participants (United Nations Capital Development Fund (UNCDF), 1997). This results from consulting with and listening to the general public which, in rural communities, is dispersed and difficult to reach out.

Dauids et al. (2005) maintain that participation can increase the risk of the project being co-opted by certain groups or interests. A small segment of the population may end up being involved and benefiting at the expense of the powerless, weak and vulnerable (Chambers, 1983). In most cases, the intended participants, particularly poor rural people and women, are often simply much busier with the basic livelihoods and survival activities in the field and at home (UNCDF, 1997). This leaves them with little time for attending meetings where they are supposed to make their voices heard. Even if they attend, such types of meetings are often dominated by a few voices, the more articulate, confident and educated and this leads to the interests of the poor being ignored.

There are also concerns with literacy and awareness problems in rural areas which can affect malaria prevention programs in these remote areas. This calls for special measures to train, support and facilitate processes and without that local communities might not actively participate (Mashinya, 2007). Affected beneficiaries will participate in a program if they see the interest in doing so. This means they must be involved from the outset and in all stages of the project cycle and should have the ability to influence decisions that are taken. Hence, the need to train, educate and support them so that they participate meaningfully. However, the organizational resources needed for these special measures are not adequate in rural areas and personnel have to be brought in from outside and when that happens the local community loses autonomy.

3. Malaria prevention in Zimbabwe

In Zimbabwe, the Ministry of Health and Child Welfare (MOHCW) has a functional national program of malaria prevention and control whose goal is to prevent deaths and reduce malaria illness, and to minimize social and economic losses due to malaria (WHO, 2010). This is envisaged to be achieved through planning and implementing selective and sustainable prevention measures

including vector control, early diagnosis and prompt treatment, early detection, prevention and containment of epidemics and advocacy, social mobilization and program communication to enhance involvement of communities in malaria control initiatives.

Prevention entails the use of drugs (prophylaxis) and other transmission prevention tools, such as insecticide-treated nets (ITNs) and indoor residual spraying (IRS) (Mwenesi, 2005). The MOHCW is responsible for the National Malaria Control Program which falls under the Department for Disease Prevention and Control. The operationalization of the program is decentralized down to district level. The program is implemented with support from NGOs which include Population Services International (PSI), United Nations International Children's Emergency Fund (UNICEF), World Vision, and Department for International Development (UK) and WHO, among others.

The study focused on IRS, environmental management and ITNs. Environmental management also includes larviciding. Since 2004, Population Services International (PSI/Z), has partnered with MOHCW and received support from UNICEF and the Global Fund Round to distribute 450 000 nets in high malaria districts (Population Services International, 2010).

3.1. Indoor residual spraying (IRS). This involves long-acting chemical insecticides being sprayed on the walls and roofs of all structures in a determined area to kill the mosquitoes that land and rest there (Montgomery et al., 2010). It is the application of small amounts of insecticide to the interior walls of a house with the aim of killing or repelling malaria-transmitting mosquitoes.

A high level of community acceptance is required for effective implementation of IRS. In order to have a significant impact on malaria transmission, widespread household coverage is required (WHO, 2006). This requires householders to cooperate with spraying teams by being present on the designated day and calls for the inclusion of the local communities in identifying the days that the spraying can be done. The government of Zimbabwe currently uses DDT for the spraying programs which are jointly undertaken with NGOs.

However, some local communities have registered their dislike of the spraying program because of side effects and perceived inefficiency of the intervention in malaria prevention. Berg (2009)

reveals that recent evidence indicates that IRS causes high levels of human exposure to DDT. There is also a need to monitor side-effects and unintended costs to human health, the environment and international trade due to residual traces in agricultural produces.

3.2. Insecticide-treated nets (ITNs). This involves residents sleeping under a net everyday which protects them from mosquito bites. ITNs, if used by the total population, have shown to be able to lower transmission by 90%, malaria incidence by 50% and all case child mortality by 18% (WHO, 2006). However, problems of low usage rate and expiry of treatment have threatened their effectiveness. Zimbabwe is projected to achieve the goal of universal coverage of long lasting insecticidal nets before December 2010 through procurement and distribution of close to 2 million nets (WHO, 2010).

For successful implementation of these malaria prevention initiatives, it is argued that Ministries of health should view communities as active participants in malaria control and work to get them to take ownership of many aspects of the program. There is also a need to deal with complaints by beneficiaries about skin reactions. People have difficulties in hanging the nets and, sometimes, there is only one net in an extended family. Okrah (2002) notes that mosquito nets are mostly used during the rainy season and most of the cases nets are used by adults.

3.3. Environmental management. This involves the treatment of water bodies that are suitable for mosquitoes to lay their eggs, and preventing the maturation of the vector aquatic stages (Lindsay et al cited in Stokes and Steyn, 2006). Environmental management entails manipulating or modifying environmental factors or their interactions with humans to reduce vector breeding vector-human contacts (Berg, 2009).

Vegetation clearance, modification of river boundaries, draining swamps and oil application to open sources are some of the strategies used under environmental management. Berg further says that eliminating vector-breeding habitats and managing water bodies has the potential to suppress vector populations, particularly in human-made habitats or urban settings.

4. Malaria prevention programs in Gokwe

Gokwe is in the Midlands province of Zimbabwe and has a climate characterized by one rainy season that extends from November to April (Moyo and Zvavahera, 2005). It is an impoverished rural district where the majority of people are too poor to afford preventatives such as mosquito nets and

mosquito repellants (Moyo and Zvavahera, 2005). Malaria transmission in the area is hyper endemic with one peak transmission season from February to May (Vundule and Mharakurwa, 1996). The area is known for high yields in cotton and experiences some hot temperatures during the year. Gokwe has an altitude of 1283m above sea level and receives an average annual amount of rainfall of 790mm (Moyo and Zvavahera, 2005). A malaria prevention program was launched in Gokwe and is jointly implemented by MOHCW and NGOs.

4.1. Level of participation. Table 1 below shows that in a study undertaken by Moyo and Zvavahera, 51% of 411 respondents were either not sure, or did not know the real cause of malaria. Only 49% of the respondents gave the correct cause of malaria as mosquito bites.

Table 1. Causes of malaria as reported by respondents

Causes of malaria	N	%
Mosquito bites only	202	49
Mosquito bites and other causes	23	6
Eating raw vegetables	17	4
Drinking dirty water	38	9
Don't know	81	20
Other incorrect causes	50	12
Total	411	100

Source: adapted from Vundule and Mharakurwa (1996)

Incorrect responses to questions on knowledge of causes of malaria showed that not much was done to involve the community in the early stages of the program. This implies a low level of participation, which is participation at the passive level according to Pimbert and Pretty's typology. The community only became visible at implementation stage where they were told that their houses were going to be sprayed. People in the community had no influence over the choice of malaria prevention program. There were no negotiations meant to arrive at a solution to the problem of malaria which was tolerable to the entire community.

Decision making in the program was neither consultative nor inclusive. Participation is currently limited to and more likely found in implementing health actions (Loewenson, 2000). A top-down approach is employed in the Ministry of Health and Child Welfare (MOHCW). Kaseke et al. (1998) concurs with the findings by arguing that the reality of the participation strongly advocated for by the government of Zimbabwe is questionable. Decisions are made with weak public input, as shown in the Gokwe study. This amounts to participation at manipulation level according to the UNCDF's typology. The community was indoctrinated to accept the program in which prior consent was never sought.

4.2. Cooperation in the malaria spraying program in Gokwe. Although during the 1991-1992 spraying season, 72% of respondents' homes were sprayed, 21% of these individuals refused to have either the bedroom (75%) or the kitchen (25%) sprayed for religious or cultural reasons or because the room was locked (Vundule and Mharakurwa, 1996). Those whose houses were not sprayed might have been unaware of the dates of the spraying program.

To make matters worse, only 11% had every room sprayed the previous 5 years which implies inconsistency in cooperation. Reasons for low spraying rate were that the spray men never came or there was inadequate water. Interestingly, 24% of respondents did not know the reason for the spraying exercise and of those that claimed to know, 34% gave incorrect explanations (Vundule and Mharakurwa, 1996). Such revelations might mean reasons given for not having their houses sprayed may not be true. Some of the respondents (26%) thought that the spraying was meant to kill domestic pests. This might have caused them to refuse if there were no pests in their rooms.

Only 9% of the respondents used ITNs, while other methods of prevention constituted 27% of the respondents. A huge figure, 64% did nothing to prevent mosquito bites. Knowledge of malaria transmission was significantly associated with taking measures to prevent mosquito bites (Vundule and Mharakurwa, 1996). Another issue is the view held by the community that the initiative was foreign and they would rather use traditional methods of prevention.

5. Community-based malaria control program in Kariba district

Kariba district, in Zimbabwe, experiences high incidence of malaria. The community-based malaria control program in the district was initiated by Save the Children Fund (UK) which works in partnership with MOHCW at district level in implementing it.

The program aims at community mobilization and involvement in all aspects of malaria management and control at district level (Freeman, 1999). The activities include community-based environmental larviciding control, use of volunteers to distribute malaria drugs in remote areas, improvement of health education, improvement in access to anti-malarial such as repellents and bed nets in remote areas and improvement in malaria training by training local health staff.

5.1. Level of participation in malaria control program in Kariba district. The level of participation in the program was high on both the

UNCDF and Pimbert and Pretty's typologies as facilitators shared decision-making with locals on scheduling of malaria prevention activities. The fact that locals were trained and received health education shows that an effort was made to facilitate the participation of the community in the development initiative. Mashinya (2007) argues that the presence of measures to train, support and facilitate processes enhances participation which then impacts positively on cooperation.

According to Pimbert and Pretty (1994), interactive participation entails joint analysis leading to action plans and the formation of local institutions. Community committees were formed which assisted in ensuring successful implementation of agreed plans and programs. The kind of partnership created ensured that the community was an ally in development and not an enemy (White, 2000; Davids et al., 2005).

5.2. Cooperation in malaria prevention program in Kariba district.

The study revealed that communities were willing and able to participate in malaria treatment and vector control. Community members cooperated because of the space for participation opened in the program. Freeman (1999) reveals that deaths due to malaria were fewer than in previous years. Parents allowed their children to engage in malaria prevention and control activities in a show of cooperation. School children engaged in activities meant to destroy mosquito larvae as a show of cooperation and mosquito populations were drastically reduced in some cases. Joint decision-making on program schedules and community-based education programs induced some measure of cooperation by the community in the malaria prevention and control program.

5.3. Malaria prevention program in Binga district.

The findings pertain to a study which was undertaken at Mucheni village in Binga district of Zimbabwe. The village is underdeveloped with poor soils, a short rainy season and high temperatures (Stokes and Steyn, 2006). The inhabitants are of the Tonga tribe and live in mud huts with thatched roofs. Binga district has the highest reported incidence of malaria. Malaria accounted for 29.2% in 2000, 46.4% in 2001 and 21.3% of admissions at the district hospital (Stokes and Steyn, 2006). The functional national program of malaria prevention and control is administered by the MOHCW provincial and district hospitals (The Herald, 2010). The program is implemented in partnership with NGOs and the aim is to reduce incidence of malaria through use of insecticide treated-nets (ITNs) and indoor residual spraying (IRS).

5.4. Level of participation. Participation in malaria prevention in Binga district was found to be at a low level. Table 2 shows that high scores were recorded in giving wrong causes of malaria which can be

an indication that there was no meaningful community participation in these programs. Genuine participation entails some form of education which was absent according to the study, as revealed by respondents (Mashinya, 2007). Real participation, not mere presence, would be indicated by community members' roles in designing, implementing, monitoring and maintaining the program. These activities were a preserve of ministry officials and NGOs in these malaria prevention and control programs (Loewenson, 2000).

Only 16.7% of the respondents had received some form of education about malaria though 99.2% would like to learn more about malaria (Stokes and Steyn, 2006). Respondents recorded high scores in their belief that drinking dirty water, eating green / unripe vegetables and eating sweet fruits cause malaria. The percentages were 88.3%, 96.7% and 85.8% of the respondents, respectively, as shown in Table 2 below.

Table 2. Causes of malaria other than mosquitoes

Results	%	N
Eating green/unripe foods	96.7	116
Drinking dirty water	88.3	106
Eating sweet fruits	85.8	103
Bathing in dirty water	72.5	87
Witchcraft/curses	33.3	40
Certain dreams	20.0	24

Source: adapted from Stokes and Steyn (2006)

Low levels of knowledge about methods to prevent malaria were shown with ITNs (28.3%), IRS (5%), and environmental methods (19.2%). Repellents, using clean water and not eating wrong foods got 9.2%, 7.5% and 6.7%, respectively (Stokes and Steyn, 2006). Such findings reveal the low levels of community participation in these malaria prevention and control programs.

The communities were not given the opportunity to choose the method of prevention they preferred. The Ministry of Health and Child Welfare and NGOs just brought nets and dispatched indoor residual spraying teams to the affected areas. Kaseke et al. (1998) also observes that while the government of Zimbabwe has set up structures for popular participation these structures are not working well.

Policy initiatives do not reflect inputs of the various structures. This may have led to problems of cooperation in malaria prevention programs as revealed in other studies (Makumbe, 1998; Van der Merwe et al., 2010). Dates for spraying were set by the spraying officials with minimum consultation done with the community. Decentralisation ends at district level with the communities far removed

from the decision-making process. Even health education and promotion messages are aired on radio (The Herald, 2010). This further alienates marginal areas like Binga from getting valuable information.

5.5. Cooperation in malaria prevention program (IRS) in Binga District. The study showed low levels of cooperation in malaria prevention initiatives as implied by poor compliance in the indoor residual spraying (IRS) program as shown in Table 3.3 below;

Table 3. IRS program compliance

Results	%	N
Houses sprayed during the 2004/05 program	42.5	51
All rooms sprayed	58.8	30
Reason for spraying is to kill mosquitoes	88.2	60
IRS helps a little to prevent malaria	70.8	85
Biannual re-mudding of walls	39.2	47

Source: Adapted from Stoke and Steyn (2006)

Only 58.8% of the respondents had all rooms sprayed and 42.5% had their houses sprayed during the 2004/05 IRS program (Stokes and Steyn, 2006). Perception that nets reduce the risk of malaria, a critical factor in compliance, was very low at 21.7%. Nets not in use attracted 15.2% of the respondents and those who had their houses sprayed refused to have either the bedroom or kitchen sprayed.

The data showed that significant numbers of the respondents did not cooperate with the spray men by refusing to have their houses sprayed. The biannual re-mudding exercise which was done, in some cases, after spraying, might compel people to conclude that it was an act of refusing to cooperate as some of them complained about side effects and flu-like symptoms. Munzava et al (1998) note that, replastering of sprayed walls because of DDT stains reduced effective IRS coverage. Low levels of cooperation give credence to the assertion that communities may sabotage development initiatives if they are not given the opportunity to exercise their freedom to choose (White, 2000; Davids et al., 2005).

Discussion

The study sought to assess the impact of community participation on cooperation in malaria prevention strategies in the three districts highlighted already. It became logical to first understand levels of participation in the development interventions before making the assessment.

Community participation hinges on people's knowledge and attitude towards the disease (Sharma et al., 2007). However, the study from Gokwe indicated that 51% of the respondents failed to

identify mosquito bites as the cause of malaria. Implicit in this is the fact that knowledge about the disease is not good and there is a low level of participation in these development initiatives. The same results were replicated years later in the Binga study (Stokes and Steyn, 2006). Using Pimbert and Pretty's typology of participation, this shows that community participation in these two studies was at the passive level. Rifkin (cited in Draper, 2010) describes it as community mobilization, or getting people to do what the professional wants.

A low level of awareness of the methods of malaria prevention is evidence of low community participation. According to Stokes and Steyn (2006), only 28.3% of respondents were aware of ITNs, while only 5% knew of the IRS program. Implying if communities were engaged in the early stages of the programs, then, they would have been in a position to give correct responses to these questions. Such shortcomings have negative implications on the commitment of communities to malaria prevention initiatives either deliberately or by default, as revealed in a study of wildlife management in Nyaminyami (Mashinya, 2007). Rifkin (2009) maintains that people are more likely to use and respond positively to health services if they have been involved in decisions about how these services are delivered, thus, helping to make the services sustainable.

However, the program by Save the Children Fund (UK) in Binga and Kariba revealed a higher level of community participation in which communities were both encouraged and prepared for participation in all facets of malaria prevention and control programs. Freeman (1999) states that the program aimed at community mobilization and involvement in all facets of malaria prevention as a goal. Participation was at functional level (Pimbert and Pretty, 1994). Higher level of participation translated into higher levels of cooperation, as evidenced by the support given to the program by the community. The findings concur with the argument that community participation enhances cooperation in program (Davids et al., 2005). Though the community depended on external support from Save the Children Fund (UK), it may become self-dependent, as the ordinary people are involved in all aspects of the program (UNCDF, 1997).

Meppem (cited in Nelson et al., 2008) suggests that experts should act more like facilitators and rather than merely listing community concerns, listen to them. Evidence in other studies reveals that communities' concerns were not addressed. In a related study, Montgomery et al. (2010) observe that little effort was made to understand local reactions

to spraying, or how local social conditions and cultural attitudes might affect how populations reacted to spraying operations. The refusal by some people to have some or all of their rooms sprayed may speak volumes about how people value their tradition and religion and use it as a reason for not cooperating (Matowanyika and Marongwe, 1998). Participation of the community at a higher level could have alerted the program implementing team of the challenges inherent in these programs which affected the cooperation of the communities.

Introduction of prevention measures is a change which brings with it a number of implications. To expect people to just accept that change without education on the importance of that change may be asking for too much and people can get that education if they are engaged at higher levels. Reports that at times spray men came and found no one at home may be a way chosen to avoid the program. It may also be due to the undemocratic and non-inclusive nature of the decision-making process. Wilkes (2000) argues that if marginal groups find their interests and needs are not met, they may choose exit as a form of (non-) participation. People have other more important issues to attend to and that makes their participation in decision-making more important. This becomes an imperative especially when scheduling the spraying program.

Bowen (2008) contends that when beneficiary communities participate fully in a project, they are more committed to its success and to sustaining it beyond the life of the funds. Locals may not have medical knowledge, but may know better than professionals how to make people cooperate with development agents. Montgomery et al. (2010), in reference to a malaria prevention program that failed, argue that disease prevention and control programs failed, because they did not place the ultimate responsibility for urban mosquito control where it belongs: with the citizens of the community.

In the Gokwe case study, perceptions of the functions of the spraying program were significantly associated with allowing their homes to be sprayed (Vundule and Mharakurwa, 1996). Those who thought the program was for killing pests scored 42% on households not sprayed during 1991-1992 spraying program. Genuine participation which would enhance people's capacity to participate in interventions by educating them may have lacked in the first place. The educational program might have assisted in dispelling the myths surrounding malaria. Bowen's assertion that, when beneficiary communities participate fully in a program, they are more committed to its success, lends credibility to the argument.

A study in Kenya on the use of ITNs which were distributed revealed that half of the nets were not in use due to chemical smell, flu-like symptoms and logistical challenges of having to hang and remove the nets everyday (Stokes and Steyn, 2006). They further say that improvements to the program, including an educational campaign, were implemented and a follow-up study showed that ITN use had increased to 73.5%. However, that may not happen if there is no full participation by communities in the development initiatives.

Engaging communities establishes a two-way communication system that can assist development agents with important feedback which they can utilize in future planning. Implicit in this argument is the fact that people need to be listened to by being given a platform for them to make their feelings about an issue known, things which were lacking in malaria prevention programs in Binga and Gokwe. Khosa (cited in Davids et al., 2005) argues that participation can lead to greater acceptance of development activities, as it gives people the feeling that they belong to a program and vice versa.

Vundule and Mharakurwa (1996) maintain that while considerable sums of money may be spent on a sustained IRS program and on treatment of malaria, as long as communities are not educated and involved, poor compliance may militate against its success. Rifkin (2009) asserts that people gain information, skills and experience in community involvement that help them to take control over their own lives and challenge social systems that have sustained their deprivation. This concurs with the ideals of the freedom-centred notion of development envisaged by Sen. When people participate at higher levels, they are free to choose interventions appropriate to their circumstances and this might lead to higher levels of cooperation as shown in the malaria prevention program in Kariba.

A very important part of the Tonga culture is re-mudding of their huts. Unfortunately, the practice reduces the effectiveness of the IRS program. In the study, about 39.2% of the respondents said they do re-mudding twice a year (Stokes and Steyn, 2006). Due to low levels of participation, there seems to be no synchronization of the two programs. Participation might have ensured that re-mudding was done before spraying giving the insecticide time to kill the vector before its expiry in which case there would be a second round of spraying. Stokes and Steyn (2006) maintain that participatory

planning for disease prevention has potential to promote ownership and acceptance, and enhances the likelihood of implementation

Conclusion

Cooperation in malaria prevention initiatives was shown to be very low in Binga and Gokwe case studies, as evidenced by the low net usage rates reported in the studies, the refusal by many people to have rooms sprayed during the IRS program, not sleeping under nets everyday and being absent at home during spraying days. This has impacted negatively on the goal of lowering malaria incidence with the rate standing at 298.1 per 1000 per population in Binga district in 2004 (Stokes and Steyn, 2006).

Literature reviewed pointed out the importance of community participation at higher levels for the success of the malaria prevention and control programs. However, community participation was also very low in Binga and Gokwe malaria prevention and control programs. In Kariba, the program by Save the Children Fund (UK), showed high levels of participation which might have contributed to the high levels of cooperation by community members. Another important issue to emerge from the study is the effectiveness of environmental management methods of vector control, because they are community-based, hence, the success of the Save the Children Fund (UK) program in Binga and Kariba districts.

The study revealed that community participation at higher levels on the participation typologies contributes in a significant way, to cooperative behavior by community members in malaria prevention and control programs.

Recommendations

After carrying out the study and having grasped the context and extent of the problem of cooperation in malaria prevention programs, the following recommendations might be useful:

Community-based educational and promotional programs. Educational programs on malaria symptoms, causes, prevention methods and treatment should be intensified, as most respondents were ignorant of these. The educational programs should also be community-based and through other media. Over-reliance on print media may be the reason for the failure by respondents in remote areas to give incorrect responses to questions.

Increased community participation. Participation of community members in all aspects of the programs should be given top priority, as it will assist in coming up with acceptable spraying

schedules, afford a platform for information exchange which would be vital for future planning and also understand challenges faced by communities during implementation of programs. Intensification of community participation would help in creating an acceptable platform to allay fears by beneficiaries about IRS effects.

Design of huts and cost of nets. Design of huts should be revisited to accommodate hanging of the mosquito nets which is another challenge facing the program, or the nets can be redesigned to fit into the design of the huts in Binga. Distribution of free mosquito nets should be intensified, since the families do not have money to buy treated nets for the extended family, let alone have them sprayed when the chemical expires.

Collective decision-making. Re-mudding should be planned in such a way that it does not work against the spraying program. This can be achieved through

collective decision-making and strengthening of local institutions. Voluntary community health workers should be encouraged to commit their time and resources to the educational programs on malaria by way of some incentives.

Environmental management measures. Environmental management measures should be supported, as they have the potential to reduce malaria incidence since people get bitten during the night when they would be engaging in activities outside their huts. This should be done through establishing community-based health committees which should be respected by professionals. Respect of local traditions and indigenous knowledge by health professionals could go a long way in enhancing cooperation. However, that cannot happen until there is genuine community participation.

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