Universidade Nova de Lisboa

Instituto de Higiene e Medicina Tropical

Evaluation of Social Behavior Communication Change Activities in Malaria Prevention and Control, Zambezia and Nampula Provinces.

Liliana de Sousa Pinto, DDS., MPH.

THESIS FOR OBTAINING THE DEGREE OF DOCTOR IN INTERNATIONAL HEALTH IN THE SPECIALTY OF HEALTH POLITICS AND DEVELOPMENT

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BIBLIOGRAPHIC ELEMENTS RESULTING FROM DISSERTATION

This thesis is based on three articles listed below, all of them already published in *Malaria Journal*.

I. De Sousa Pinto, L., Arroz, J.A.H., do Rosário O Martins, M. *et al.* Are we interconnected? A qualitative study on the role and perception of different actors on malaria social behaviour change interventions in rural Mozambique. Malaria Journal 2020; 19:240.

II. De Sousa Pinto, L., Arroz, J. A., Maria do Rosário, O. M., Hartz, Z., Negrao, N., Muchanga, V., Cossa, A, and Zulliger, R. Malaria prevention knowledge, attitudes, and practices in Zambezia Province, Mozambique. Malaria Journal 2020; 20:293.

III. Hildon, Z.JL., Escorcio-Ymayo, M., Zulliger, R., De Sousa Pinto, L *et al.* "We have this, with my husband, we live in harmony": exploring the gendered decision-making matrix for malaria prevention and treatment in Nampula Province, Mozambique. *Malar J* **19,** 133 (2020). https://doi.org/10.1186/s12936-020-03198-5

DEDICATION

"Beware of false Knowledge; it is more dangerous than ignorance"

(George Bernard Shaw)

It is my genuine gratefulness and warmest regard that I dedicate this dissertation to my parents: **Maria Isabel dos Santos Carneiro** and **Jose de Sousa Pinto**. They have been encouraging my studies and always supporting my dreams. This is for you my parents.

I also dedicate this dissertation to:

My husband:

Jeronimo Francisco da Fonseca, thank you love!

My brother and sister

Filipe Pinto

Milena Pinto

And

A very special dedication to my unborn two babies (boy- Jose and girl- Zoe), during the finalization of my PhD I lost them, and I continue to keep going and achieve this final stage, although all of this rough time – my babies, you keep mom shinning.

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RESUMO

As intervenções de Comunicação para Mudança Social de Comportamento (CMSC) podem acrescentar valor no esforço de prevenção da malária para alcançar objetivo a longo prazo a eliminação. As intervenções de CMSC em Moçambique são lideradas pelo Ministério da Saúde (MISAU)/ Programa Nacional de Control da Malária (PNCM) e implementadas por diferentes parceiros de implementação (PI). Contudo, são raras as avaliações relacionadas com a medição dos resultados das intervenções de CMSC de prevenção e controlo da malária em Moçambique, importa avaliar os resultados destes investimentos e a sua contribuição na redução da morbi-mortalidade por malária em Moçambique. O objetivo geral da pesquisa é avaliar os resultados das intervenções de CMSC na prevenção e controle da malária nas províncias de Zambézia e Nampula.

Métodos: O estudo foi realizado em 4 distritos rurais: Nicoadala e Namacurra na província da Zambézia e Angoche e Nacarroa na província de Nampula. A partir de uma pesquisa avaliativa e com abordagem qualitativa e quantitativa, foram realizados três estudos: i) estudo qualitativo descritivo com paradigma de pesquisa construtivista em Outubro de 2018; ii) estudo quantitativo descritivo transversal em Novembro de 2018 e iii) estudo qualitativo com paradigma socio-construtivista em 2017. O estudo qualitativo usou os grupos de discussão focal (GDFs) e Entrevistas Individuais Profundas. Os principais indicadores medidos no estudo quantitativo foram: i) percentagem de pessoas que se lembram de ouvir ou ver uma mensagem sobre malária nos últimos 6 meses; ii) percentagem de pessoas com atitudes e práticas favoráveis em relação aos métodos de prevenção da malária; iii) relação utilização/acesso da rede mosquiteira: indicador de comportamento.

Resultados: Os actores comunitários têm um bom conhecimento sobre a prevenção da malária e desempenham um papel importante na divulgação das principais mensagens de prevenção da malária, contribuindo para que a comunidade adopte melhores e positivos comportamentos em relação a malária. Os actores institucionais de saúde e os parceiros de implementação reconhecem o seu papel nas actividades de prevenção da malária e reconhecem a necessidade de uma maior interligação entre os diferentes sectores e níveis. 96,4% dos beneficiários recordou ter ouvido falar de malária nos últimos seis meses, 90,0% tinham conhecimento da prevenção da malária e 70,0% das medidas preventivas. Dos 97,7% que receberam redes mosquiteiras tratada com insecticida de longa duração (REMTILD), através de uma campanha de distribuição massiva de REMTILD, 81,7% tinham dormido sobre uma REMTILD na noite anterior ao inquérito. Em termos de fonte de informação sobre saúde, 70,5 % mencionou o papel dos voluntários comunitários na divulgação dessas mensagens. CMSC influenciam os papéis de gênero e as desigualidades na atitude e comportamento no acesso aos serviços de saúde e a partilha de decisões nos agregados familiares são encourajados a serem abordados nas intervenções de CMCS.

Conclusão:. As intervenções de CMSC desempenham um papel importante na prevenção e controle da malária, são amplamente reconhecidas pelos diferentes atores-chave e devem ser priorizadas na agenda dos programas de malária. Necessidade de se realizar uma avaliação de CMCS para apoiar no refinamento de um pacote integrado e completo de CMSC, incluindo a revisão das menssagens chaves da prevenção da malária.As desigualdades de gênero são questões sensíveis, também devem ser integradas e consideradas em uma liderança de alto nível, garantindo que as práticas nocivas da comunidade e comportamentos negativos à saúde sejam evitados. Todas estas evidências alinham e interligaram todos os diferentes intervenientes institucionais e comunitários que implementam tais intervenções, melhorando deste modo, os comportamentos positivos em relação a malária, consequentemente reduzindo o peso da malária no país. Irá contribuir para alcançar os objetivos da Estratégia Técnica Global para a Malária 2016-2030.

Palavras-chave: Comunicação Social para Mudança de Comportamento, Pesquisa Avaliativa, Malaria, Mozambique

ABSTRACT

Introduction: Social Behaviour Change (SBC) interventions can add value in an effort for malaria prevention toward a long-term objective of elimination. The SBC interventions in Mozambique are led by Ministry of Health (MOH) and implementing by different implementing partners (IP). There is a critical information gap regarding previous and ongoing malaria SBC interventions. The general objective of this thesis is to evaluate the malaria prevention and control SBC interventions results in Zambezia and Nampula provinces.

Methods: The study was conducting in four rural districts of Mozambique, namely Nicoadala, Namacurra in Zambezia province, Angoche and Nacaroa in Nampula Province. Based on an evaluation research and using a qualitative and quantitative approach, three studies took place: i) a descriptive qualitative study with a constructivist research paradigm in October 2018; ii) a quantitative descriptive cross-sectional survey in November 2018 and iii) a social constructivist qualitative study in 2017. The qualitative studies used focus group discussions (FGDs) and in-depth interviews (IDIs). The main measure outcomes for the quantitative study were: i) percentage of people who remember hearing or seeing a message about malaria in the previous 6 months; ii) percentage of people with favorable attitudes and practices toward malaria prevention methods; iii) use/access ratio of mosquito net: behaviour indicator.

Results: Community actors have good knowledge on malaria preventions and play an important role in dissemination of key malaria prevention messages, contributing for the community to improve better and positive malaria behaviours. Institutional health actors and implementing partners recognize their role on malaria prevention activities and more interconnection is needed at different sectors and levels. 96.4% of respondents recalled hearing about malaria in the previous 6 months, 90.0% had knowledge of malaria prevention, and 70.0% of preventive measures. Of the 97.7% respondents that had received LLINs through a mass LLIN distribution campaign, 81.7% had slept under an LLIN the night before the survey. In terms of source of health information, 70.5 % mentioned the role of community volunteers in dissemination of malaria prevention messages. SBC influenced more equalitarian gender roles, attitudes and uptake of protective malaria-related practices. Sharing decisions in the households encouraged SBC interventions and that was lived and aspirational.

Conclusions: SBC interventions play an important role in malaria prevention and control and is widely recognized by the different key actors and should be prioritized in the malaria programs agenda. More interconnections between the different actors is needed, SBC assessment needs to be done to support refine a complete and integrate SBC package that include the improvement of malaria messaging. Gender inequalities sensitive matters, also must be integrated and considered in a high level leadership, ensuring that the community harmful practices and negative health behaviours will be avoid. All of these evidences will align and interconnect all the different institutional and community actors that implement SBC, improving community better malaria behaviours. This will be great for achieving the goals of the Global Technical Strategy for malaria 2016-2030.

Key words: Social Behaviour Change, Evaluation Research, Malaria, Mozambique

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GLOSSARY OF COMMONLY USED TERMS

Households - All the people who live together or sleep in the same house / yard / plot and share the same food at meal times. When a man has more than one wife or woman with separate house / yards / plots, each of them is considered as a separate household.

Social and Behaviour Change - a process that focus on changing behaviour using interventions to improve health outcomes; it also works at different levels, individual actions itself, collective group actions, and the strengthening of social and cultural environment where this individual is inserted.

Evaluation Research –a method that consist in collecting, analyzing and reporting about an intervention to promote and assist a program in decision-making.

Social Ecological Model –a framework for understanding the multifaceted and interactive effects of personal and environmental factors that determine behavior. It recognizes the relationship that exists between an individual and their environment.

Knowledge, Attitude and Practices (KAP) study - a type of study that can help to track progress, monitor the contribution of different communication channels, and focus communication activities on the most at risk groups.

Gender - powerfully shapes all aspects of health and wellbeing. Socially and culturally constructed gender norms determine roles and opportunities for all people, affecting social and structural determinants of health, health risk behaviours, and access to and quality of health and social services.

LIST OF TABLES AND FIGURES

ACRONYMS

ANC – Antenatal Care

DNSP - National Directorate of Public Health

FGDs - Focus Group Discussions

IMASIDA – National Malaria, HIV Survey

IDIIs - in-depth individual interviews

IRS - Indoor Residual Spray

ITNs - Insecticide-Treated Nets

IPT – Intermittent Preventive Treatment

HBHI – High Burden to High Impact

HC3 - Health Communication Capacity Collaborative;

KAP - Knowledge, Attitude and Practices

LLIN - Long-Lasting Insecticidal Net

MiP - Malaria in Pregnancy

MIS - Malaria Indicator Survey

MOH - Ministry of Health

MSP - Malaria National Strategic Plan

NMCP - Mozambique National Malaria Control Program

PESS - Mozambique Strategic Health Plan

PHC - Primary Health Care

PMI - U.S. President's Malaria Initiative

SBC - Social and behavior change

SEM - Social Ecological Model

TTSM: Tchova Tchova Stop Malaria

USAID - United States Agency for International Development

WHO - World Health Organization

CHAPTER 1: GENERAL INTRODUCTION

PART I

1.1 MALARIA: GENERAL ASPECTS

Malaria is caused by a single-cell parasite of the genus *Plasmodium* (P.). *P. falciparum* is the most prevalent malaria parasite in the WHO African region and it's transmitted by mosquito of the genus *Anopheles (An.*), being transmitted from one person to another (WHO 2019a, MISAU 2017).

1.1.2 Malaria burden in the World, Africa and Mozambique

Malaria is a public health problem worldwide. In 2020, an estimated 241 million cases occurred worldwide compared with 229 million cases in 2019 (WHO 2021, WHO 2020)

Globally, the incidence malaria case increased from 56 in 2019 to 59 cases per 1000 population at risk in 2020. The increase in 2020 was partially associated with disruption to services during the COVID-19 pandemic (WHO 2021).

In 2020, World Health Organization African Region accounted for most of the global malaria cases (~96%) and Mozambique represented 3.8 % of the global malaria case burden (WHO, 2021). Globally, there were an estimated 627000 deaths from malaria in 2020, compared with 558000 estimated deaths in 2019 (WHO 2021); this increase is due to disruptions of malaria essential services during the COVID19 pandemic. – Figure 1.

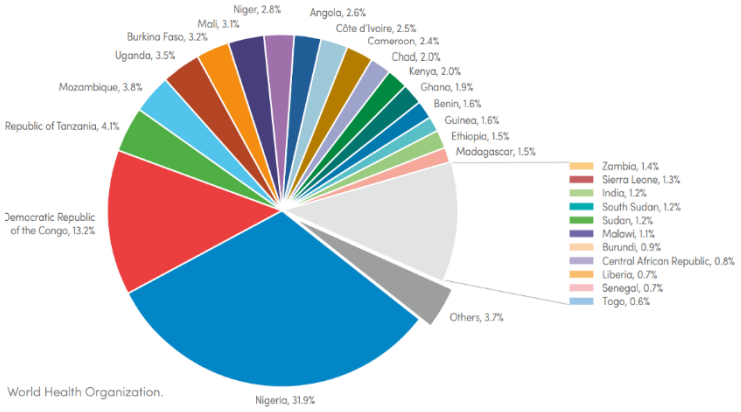

Figure 1: Estimated malaria deaths by WHO African Region, Countries with high transmission, 2021. Source: WHO estimated malaria cases by African region, 2021. (World Malaria Report 2021)

Children under five years old are the most vulnerable group affected by malaria and accounted with 77% of all malaria deaths worldwide (WHO 2021).

In Mozambique, the malaria parasite prevalence among children 6-59 months old was 39% in 2018, 40% in 2015, 38% in 2011 remained in this average. (IDS 2011; IMASIDA 2015, MIS 2018)

1.1.3 Malaria Elimination and Prevention, High Burden to High Impact

In the 11-high burden to high impact (HBHI) countries, there were about 163,000 million malaria case and 444600 deaths in 2020 due to COVID19 (WHO 2021).

Between 2000 and 2020, no country that was certified malaria free has been found to have malaria transmission re-established (WHO 2021).

Despite delays, planned net campaigns distributions occurred in most of the countries and the number of tests performed had risen in most countries, but was still lower than the same period in 2019, with reductions greater than 20% in Mozambique (WHO 2021).

1.1.4 Malaria investment

The WHO Global Technical Strategy for malaria 2016-2030 (GTS) estimates funds to achieve milestones already set up until 2030. In 2019, the total annual resources investment was estimated at US$ 3.0 billion rising to US$ 6.8 billion in 2020 (WHO 2021).

The total annual estimated funds needed has increased from USS 3.0 billion in 2019 to USS 2.7 billion in 2018 and 70% of the total funding for malaria control and elimination is led by the United States Government following by United Kingdom, Northern Ireland and France (WHO 2021). The principal fund channel is through the Global Fund to Fight AIDS, Tuberculosis and Malaria with 42% of allocation and 56% went to the WHO African Region (WHO 2021) – Figure 2

Malaria diagnostic, drugs/medicines and malaria vaccine are the principal area of investment and funded rather than Vector Control and Social Behavior Change (SBC) intervention.

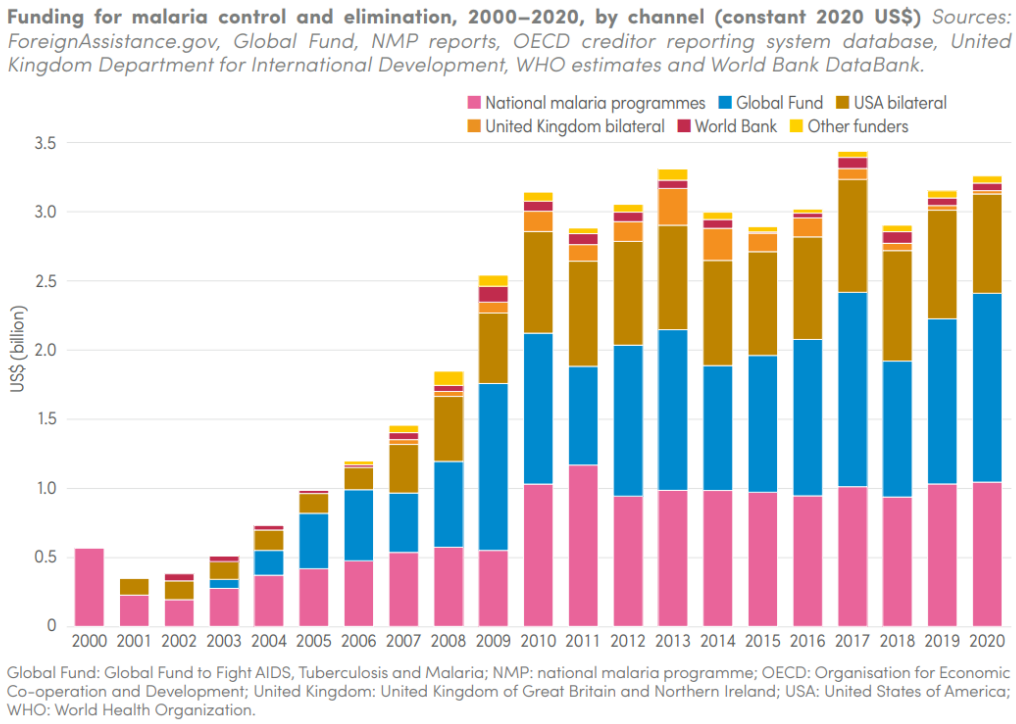

Figure 2: Malaria funding by source, 2000–2020. Source: WHO estimates (World Malaria Report 2021)

An estimation of the resources required for the Mozambique Strategic Health Plan (PESS) indicates the Mozambique Malaria National Control Program (NMCP) requires significantly more resources (22%) than other programmes in the National Directorate of Public Health (DNSP). For the period 2014 to 2019, this analysis estimates NMCP total financial requirements for the period at nearly USD 310 million – almost 79% of this value is for medicines and commodities (mostly Long-Lasting Insecticidal Net- LLIN), 10% for communications, media, and outreach, and 10% for programme management (including Indoor Residual Spray) operational and coordination meetings at national and provincial level (Dutta et al. 2014).

PART II

1.2 Malaria Indicators

The Malaria Indicator Survey (MIS 2018), indicate that have been progress related to malaria indicators in country related to malaria prevention and case management in general population, specifically to children under five and pregnant women. The percentage of households with at least one insecticide-treated nets (ITNs) for each two people increased from 37.9% in 2015 to 51.0% in 2018, the percentage of pregnant women that received at least 3 doses of Intermittent Preventive Treatment (IPT) in antenatal care, increased from 22,4% in 2015 to 40.6% in 2018 and the percentage

of children under 5 that sought for malaria care and treatment increased from 62.7% in 2015 to 68.6% in 2018 (IMASIDA 2015, MIS 2018). Although the malaria indicators showed some progress, there is need to be more efforts to achieve the National Malaria Strategic Plan goals and accelerate malaria elimination in country.

1.3 Malaria Social Behavior Change Strategy in the World, Africa and Mozambique

1.3.1 Social Behaviour Change Strategy as key factor for malaria prevention control

Social Behaviour Change (SBC) is a process that focus on changes behavior using communication and other interventions to improve better health outcomes, it also works at different levels, individual actions itself, collective group actions, and the strengthening of social and cultural environment where this individual is inserted (Storey and Figueroa 2012; Kundu et al. 2017; PMI 2018).

SBC strategies support increasing the consistent and correct use and uptake of malaria interventions, improving malaria quality control reducing malaria morbidity and mortality (PMI 2018).

Several studies from many countries, Africa, Asia and Latin America, reported better outcomes on insecticide bed net behaviours integrating SBC approaches. For example, Boulay, et al. (2014), concluded in Zambia that SBC exposure led to increase the ITN acceptance and use. Several sub-Saharan African countries studies demonstrated an association between SBC intervention and malaria in pregnancy and case management.

National Malaria Surveys (IMASIDA 2015, MIS 2018), demonstrated important and different behaviour patterns related to malaria prevention and control. In these surveys were also reported that, education, geographic location (urban or rural) and wealth quintile has a directly influence in knowledge, attitude and practices of the communities.

There is a critical information gap related to SBC interventions in Mozambique. Existing research and assessment SBC information needs to be compiled and a prioritised research agenda developed and implemented to better understand social and cultural norms and malaria knowledge, behaviour and practices in order to develop responses that will both encourage adoption of desired behaviours and measure the outcome of SBC interventions, so they may be continually improved (MISAU 2017).

The Malaria National Strategic Plan - MSP (2017-2022), recognized the importance of SBC interventions in malaria control and elimination but it’s not prioritized. The objective and challenge of the NMCP SBC unit is to implement an effective approach to ensure at least 70% of people seek

appropriate & timely healthcare and at least 85% of the population uses an appropriate protection method, by 2022 (MISAU 2020).

A midterm review of the MSP was conducted in 2020 by the NMCP which reported persistent constraints at central level around partners´ methodology for reporting results/indicators and there is still no standardized list of indicators to be used at national level.

Additionally, it was also pointed that, there is a financial gap and staffing to conduct SBC (national and provincial) as malaria SBC interventions are not prioritized at all levels.

Implementation challenges due to gaps in support and supervision for SBC interventions at the facility and community levels and inadequate coordination of SBC interventions with partners at provincial and district levels, was also reflected.

The socio-economic and cultural factors influencing health behaviours for pregnant women, individuals and family members in using malaria preventive measures (MISAU 2020).

1.3.2 Malaria SBC in the context of COVID-19 Pandemic

COVID-19 (disease caused by the SARS virus- CoV-2) is an infectious disease caused by the new coronavirus called SARS-CoV-2 (Respiratory Syndrome Acute Severe caused by Coronavirus 2), initially associated with cases of viral pneumonia with the first case reported in late December 2019 in Wuhan, China Popular Republic. Since then, there has been a rapid spread in the world, with the World Health Organization (WHO) declared as a pandemic in 2020.

Globally there have been 290,959,019 confirmed cases of COVID19, including 5,446,753 deaths, with a total of 8,693,832,171 vaccine doses have been administered until January 2022 (WHO 2022)

The first Mozambique national COVID19 report, reported an association between the total patients tested to malaria (rapid diagnostic test - RDT) with the COVID19. In the beginning of 2020, there was an increase of patients tested to malaria (2000000) and a decreased of patients tested to malaria (1200000) in the end of 2020, due to the epidemiologic scenario, especially at urban areas and changes in the access of health services during the pandemic (INS 2020) – Figure 3

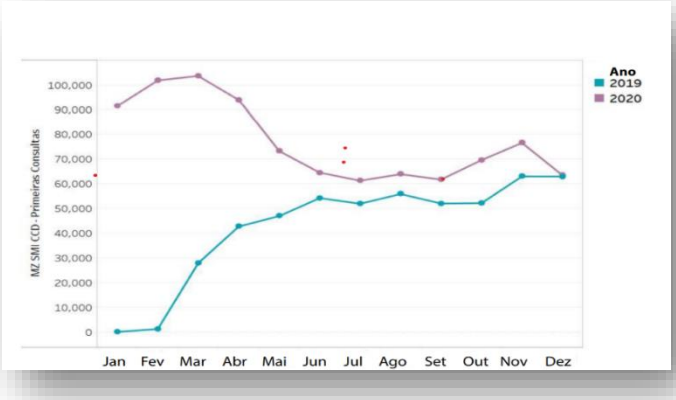

Figure 3: Temporal Analysis of Patients Tested for Malaria by RDT, 2019 e 2020, Mozambique. Source: SIS-MA

WHO recommended countries to ensure the continued malaria services in the context of COVID19, due to a disruptions of malaria essential services that might occur during this pandemic situation and NMCPs must ensure that malaria efforts are not hampered or neglected as they tackle the COVID19 pandemic (WHO 2020).

Malaria SBC interventions during the COVID19 context, should take into account, the limit number of people in the same place such as community events and interpersonal communication interventions should be avoiding in favour of exploring digital platforms and social media strategies (RBM 2020).

The study data were collected prior to COVID-19 (2018) and the thesis report is writing in actually COVID19 pandemic context, but it's important to refer in this thesis report and could be used in future SBC interventions readjustments to reach the community in the similar pandemics contexts.

PART III

1.4. Mozambique Health Care System and the National Malaria Control Program

1.4.1 Organization and access of the health system

Mozambique has 28 million people and Nampula and Zambezia have the most inhabitants, with 6.102.867 and 5.110.87 (INE 2017). The weather is tropical and dry. The climate conditions associate with the economic situation, poverty and natural disasters are social determinants for the epidemiological profile in country where the infections transmitted diseases such as malaria is an endemic disease.

Around 68% of the Mozambican population has access to health services, but for that it was necessary to walk around 30 mints (IOF 2015).

Some of the health facilities don't have adequate infrastructures to provide quality services, such as human resources, equipment (80%), commodities (43%), supplies and medications (IDS 2011, SDI 2015).

The Mozambique health care system is based on primary health care (PHC), equity and better quality service. Includes public, private and non-profit organizations. The public sector operates with a decentralized governance and leadership system, is the main provider of health services and provides four levels of health care (PNCM 2017, AHO 2018).

Primary: offering PHC including outpatient and maternal and child health services. Consisting of urban and rural health centers and posts. These represent more than 95% of the total health facilities in country, 1,575, in 2018 (INS 2018) – Figure 4

Secondary: consisting of rural, general and districts hospital and it's the first level of referrals and current existence 54 health facilities of this type across all 156 districts, representing 3% of the total number of health facilities (INS 2018).

Tertiary: there are 7, representing 63% of the total number of hospitals and 0.4% of the total number of health facilities.

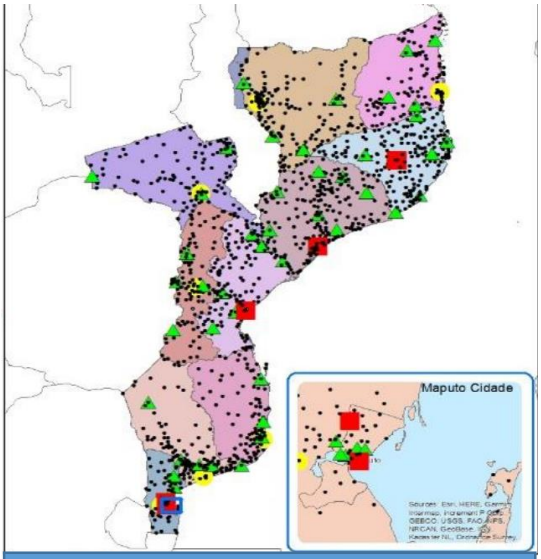

Figure 4: Distribution of public health facilities in 2018. Sources: (INS 2018)

Quaternary: includes two specialized hospitals and four central hospitals (Maputo Central Hospital for the southern region, Beira Central Hospital and Quelimane Central Hospital for the central region, and Nampula Central Hospital for the northern region). This level represents 37% of the total number of hospitals and 0.4% of the total number of health facilities.

Mozambique has less than 49,000 health professionals, only 4.3% are medical doctors (MISAU 2015). The ration of health professionals to population is 6 per 10,000 people and with the majority of the population utilizes public health systems (INS 2018, MIS 2018). The community health worker that has in its curriculum preventive (80%) and curative care (20%), play an important role in the rural area where access to health facility is limited and the majority of the population lives in malaria prevention, diagnosis and treatment.

1.4.2 National Malaria Control Program (NMCP)

The NMCP's mission is to effectively coordinate, develop, plan and monitor the implementation of evidence-based strategies and interventions that will reduce the burden of malaria in Mozambique. NMCP is integrated in the National Directorate of Public Health, one of the Ministry of Health´s divisions.

The NMCP is staffed by government employees as well as technical staff contracted through partners. There are two operational divisions: technical and administrative. Within the technical division, there are five separate units, the heads of which report directly to the NMCP Director, who provides overall technical oversight and coordination on 1 - Integrated Vector Control, 2 - Case Management, 3 – SBC,

4 – Surveillance, Monitoring and Evaluation (SM&E), 5 – Program Management. Currently, NMCP includes 16 employees.

These units coordinate the planning and implementation of their respective malaria interventions as well as the supervision and M&E of implementation by provincial, district and sub-district staff and implementing partners.

The integrated vector control unit currently comprises a total of seven staff and is subdivided into three implementation areas: Long Lasting Insecticide Net (LLIN), Indoor Residual Spray (IRS) and entomology. Its principle functions are to lead, coordinate and provide technical support for all integrated vector control activities.

The case management unit comprises one staff member who looks after all aspects related to diagnostic, treatment, logistics and pharmaceutical services, as well as Malaria in Pregnancy (MiP) and preventative therapies. This unit leads, coordinates, manages and provides technical assistance on all aspects related to malaria diagnosis, treatment and preventative therapies in the country.

The SBC unit comprises one staff member who collaborates with Health Promotion Department (DEPROS) for development and implementation of interventions. The unit oversees and coordinates all malaria SBC activities implemented by the NMCP and different partners in the country.

The SM&E unit comprises three staff; the work of this unit is supported by Monitoring and Evaluation (M&E) focal points at provincial and district level. This unit is responsible for program M&E, data management, surveillance and response.

The administration unit is currently supported by an administration / finance staff member and a logistics advisor; its functions include coordination availability and utilization of program resources including financial, human, materials, equipment and infrastructure.

In terms of Governance and Coordination, the NMCP has overall responsibility for leading and managing malaria interventions nationally – however many of the issues faced are multi-sectoral, involve a range of funding, technical and implementation

The content of the MSP is aligned with national strategic and development priorities and is informed and guided by current WHO global strategy.

PART III

1.5 Research question, hypothesis, and objectives

1.5.1 Research question and hypothesis

The **research question** for this thesis is the following: Are the Social Behaviour Change interventions on malaria control and prevention relevant for community, institutions actors and beneficiaries?

The following **hypotheses** were assumed**:** i) null hypothesis: SBC interventions on malaria control and prevention are not relevant to different actors; ii) alternative hypothesis: SBC interventions on malaria control and prevention are relevant (and statistically significant) for the different actors.

The **general objective** of the thesis is: to evaluate SBC interventions in malaria prevention and control in Zambezia and Nampula Province between 2011 to 2017.

In order to achieve the general objective three studies were conducted with three specific objectives:

Study 1: to describe the perceptions of community and institutions actors about SBC interventions on malaria prevention and control;

Study 2: to analyze/assess knowledge, attitude and practices of primary beneficiaries of SBC interventions on malaria prevention and control.

Study 3: to explore gender dynamics and processes in relation to the uptake of the following malaria-related practices in a SBC intervention.

PART IV

1.6 Overview of the studies and methodological approach

1.6.1 Evaluation research: the cornerstone of basis of this thesis

This thesis was conducted as an evaluation research. Evaluation research is a method that consist in collecting, analyzing and reporting about an intervention to promote and assist a program in decision-making (Hartz et al. 1997; Quinton et al. 2020).

An outcome evaluation has its roots in the social, behaviours and statistics sciences with their principles and methodologies of research (Coyle et al.1991) and this term is a systematic process that examines results/outcomes of what was done, to whom and how, and its effectiveness.

An intervention can be evaluated in two ways, normative when the concepts and norms are analyzed or evaluative when the research is done to understand the different relationship existent between an intervention (Hartz et al. 1997).

To promote malaria preventions interventions and community participation through the use of different communication channels and message dissemination, the evaluation research is one of the key step (Canavati et al. 2016).

The first study of this thesis is an evaluation research study where the perception of different actors on malaria SBC activities were explored to collecting accurate information about the relationship between the different actors and redefine strategies for decision-making. The second study of this thesis is also an evaluative research that was conducted to assess the Knowledge, Attitude and Practices (KAP) of malaria prevention SBC beneficiaries.

The third study also was conducted to explore key protective malaria-related behaviours, unpacking in particular the decision-making process in relation to SBC intervention, providing information to improve positive health behaviours, planning and policy.

1.6.2 Conceptual framework

This thesis is oriented by the Social Ecological Model (SEM). SEM is a model that combines SBC approaches to support the analysis and plan of SBC interventions (Arroz 2017).

The SEM is a framework for understanding the multifaceted and interactive effects of personal and environmental factors that determine behavior. It recognizes the relationship that exists between an individual and their environment.

Specifically, while individuals are responsible for instituting and sustaining the lifestyle changes necessary to reduce risk and improve health, individual behavior is influenced to a large extent by the social environment, such as community norms and values, regulations and policies.

Barriers to healthy behavior are shared in the community. As barriers are reduced or removed, behavior change becomes more viable and sustainable. The SEM states that the most effective approach to promoting healthy behaviors is a combination of efforts at all levels - individual, interpersonal, community, organizational and political/enabling environment, as illustrated in the figure 5.

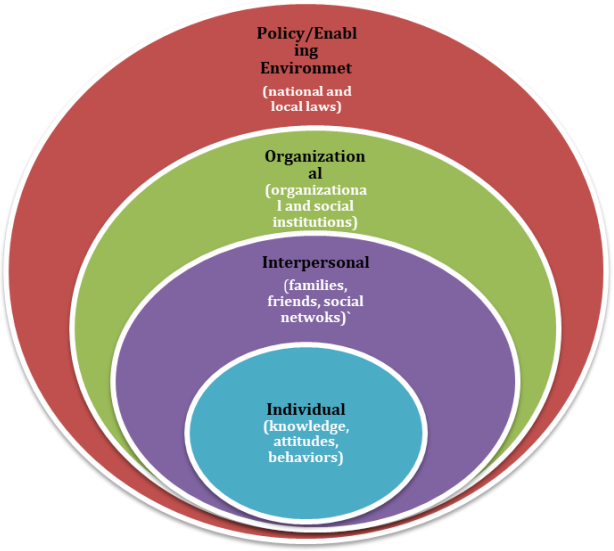

Figure 5: Social Ecological Model.

Based on this conceptual framework and research question, the study design and methodological procedures were developed to accomplish the objectives of each study.

The SEM is used in this thesis as a framework for understand the levels that influences on SBC activities. It is used to examine the contribution of individuals, interpersonal, organizational and policy/enable environment factors on SBC activities outcomes.

The institution and community actors plan, implement and monitoring SBC activities, deliver strategies to reach the community and influence malaria demand behaviours.

The SBC beneficiaries receive malaria prevention information through community actors well trained that influence individual demand behaviour, increase the knowledge, attitude and practices positive malaria behaviour.

The SBC beneficiaries reached through community mobilization are exanimated the contributions of key protective malaria-related behaviours, unpacking in particular the decision-making process in relation to those kinds of community mobilization interventions.

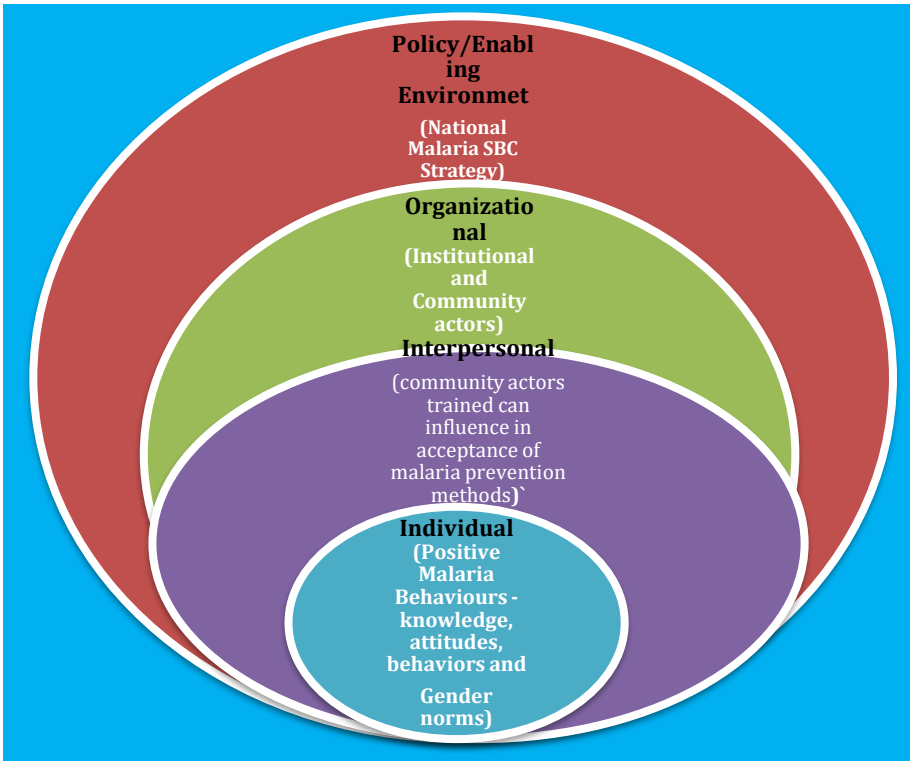

Figure 6: Conceptual framework of this thesis

Table 1 summarizes the three studies regarding the approach, design, purpose, and main outcomes.

Table 1: Overview of the studies and methodological approach

Study and approach	**Design**	**Purpose**	**Main outcomes**
Qualitative	Descriptive cross-sectional	Describe the perceptions of community and institutions actors about SBC interventions on malaria prevention and control;	1) Organizational and functional aspects of community structures and school teachers regarding malaria prevention; 2) Malaria knowledge of community structures and school teachers; 3) Perceptions of health institutional actors about SBC activities and community involvement; 4) Perceptions of institutional actors about the coordination and leadership of the SBC malaria interventions
Quantitative	Descriptive cross-sectional	Analyze/assess knowledge, attitude and practices of primary	1) percentage of people who remember hearing or seeing a message about malaria in the previous 6 months; 2) percentage of people with favorable attitudes towards ITNs, malaria

		beneficiaries of SBC interventions on malaria prevention and control.	related practices (use of ITNs, taking anti-malarial) and services (timely demand for health, institutional or community services when noticing signs and symptoms of malaria); 3) percentage of people who believe most of their friends and communities practice the behaviors (using ITNs and seeking counselling and health care services); 4) percentage of people who identify the mosquito as a cause/vector of malaria; (v) percentage of people who recognize the main signs and symptoms of malaria; 5) percentage of people who know about treatment for malaria; 6) percentage of people who know malaria prevention measures; 7) percentage of households with at least one ITN; 8) percentage of households with one ITN for every 2 people; 9) percentage of people with access to mosquito nets; xi) percentage of people who slept under an ITN the night before the survey; and, 10) Use/access ratio of mosquito nets: behavior indicator.
Qualitative	Descriptive cross sectional	Explore gender dynamics and processes in relation to the uptake of the following malaria-related practices in a SBC intervention	1) Understanding of men's and women's decision making regarding the prevention and treatment of malaria; 2) Identify where gendered pathways could be interrupted, redirected or, if health promoting, supported.

1.6.3 Study Settings

The studies of this thesis took place in Zambezia and Nampula provinces.

Zambezia province with **5 156 587** inhabitants is the second-most populous province of Mozambique, located in the central region of Mozambique (INE, 2017). The illiteracy rate is 54%, being more prevalent in women (72%) than men (34%), and 65% of the populations has easy access to health facility, i.e., less than a 30 –min walk (MIS, 2018). Nampula province with a **5 750 350** inhabitants is the most populous province of Mozambique, located in the north region of Mozambique (INE, 2017).

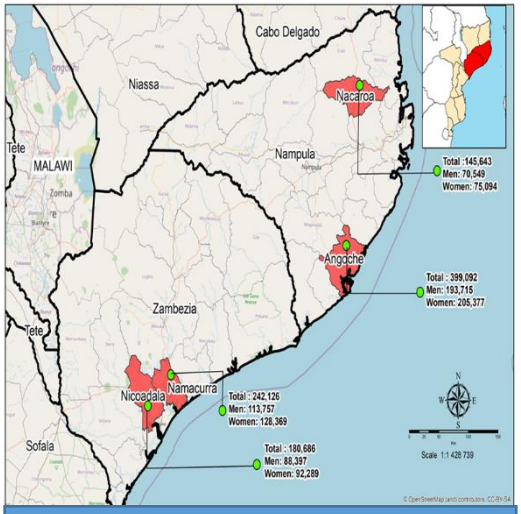

Figure 7: Map of studies settings

Both provinces were selected based on being the most populous provinces of Mozambique with high malaria prevalence province – Nampula (48%) and Zambezia (44%) and completely knowledge about malaria preventions and treatment – Nampula (65%) and Zambezia (33%) (MIS, 2018).

Namacurra and Nicoadala are districts of Zambezia and Angoche and Nacaroa are districts of Nampula. All districts were selected based on high malaria incidence - more than 250 cases per 1000 habitants (MISAU, 2016), having benefitted from malaria prevention SBC interventions, rural, coastal, peri-urban, matrilineal influences and easy access.

1.6.4 Studies populations

Study 1 include institutions actors such as health authorities and its implementing partners and community actors who were teacher's schools, members of community structures and community health workers (CHW).

Study 2 involved the head of household's member, the SBC activities beneficiaries and study 3 selected men and women, community member participants, key influencers such as community leaders, mother-in-laws, matrons (senior women leaders in communities), traditional healers, and traditional birth attendants (TBAs).

1.6.5 Ethical Considerations

The studies protocol was reviewed and approved by the Ministry of Health, local research ethics committee in Mozambique, Comité Nacional de Bioética para a Saúde (Ref 308/CNBS/2018) in 2017

and 2018. The studies were also administratively authorized by the Provincial Health Directorate of Zambezia and Nampula.

CHAPTER 2 – RESULTS

Article 1 - Are we interconnected? A qualitative study on the role and perception of different actors on malaria social behavior change interventions in rural Mozambique.

Highlights

What is already know about this topic?

- Interconnecting institutions (health and education sector) and community (through a network of community structures) in SBC activities can add value in an effort for malaria prevention towards a long-term objective of elimination.
- The Global Technical Strategy for Malaria 2016-30 (GTS 2016-30) supports and strengthen the enabling environment by several activities, multisectorial collaboration, empowerment of communities, and engagement with non-governmental organization (NGOs)
- The engagement of the Ministry of Education (and other ministries), and close collaboration with community leaders, teachers, and malaria officers are considered the greatest influencers on malaria prevention practices.

What are the new findings?

- Members of community structures (volunteers) are well organized and functioned, linked to the health sector with good knowledge of malaria prevention.
- Education sector (school teachers) links with the health sector were in some case good, and in other cases, non-existent.
- The importance of SBC interventions for malaria control was recognized by health actors, although the activities are delegated to non-governmental institutions.
- More interconnection between different actors (multi-sectorial approach) and implementation partners is need needed at different levels, with the engagement and ownership of Ministry of Health leading this interconnection.

- Domestic budgetary allocation constraints, quality of intervention and lack of SBC standard indicators were also identify by health actors as aspects for improvement.

Contributions of the findings for the literature and policy makers

The added value to literature is the fact that during SBC interventions planning process, should include malaria SBC key and standard indicators that will be used between the key implementing partners, budget/funds allocation according with the needs, considering that, SBC is a cross-cutting process on each malaria intervention (IRS, Malaria Case Management, LLITN), multi-approach and coordination lead by the Ministry of Health might considerable be improved. The improvement of SBC interventions will likely result in more community involvement and acceptance of malaria preventions methods and positive malaria behaviours, which might well contribute to malaria morbidity and mortality reduction.

As there is a lack of malaria SBC evaluation research in Mozambique, this study fills this gap and delivers evidence for decision making to revised and improved the National Malaria Social Behaviour Change Strategy in Mozambique.

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RESEARCH Open Access

Are we interconnected? A qualitative study on the role and perception of different actors on malaria social behaviour change interventions in rural Mozambique

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Abstract

Background: Interconnecting institutions (health and education sector) and community (through a network of community structures) in social and behaviour change (SBC) activities can add value in an effort for malaria prevention towards a long-term objective of elimination. This approach has been implemented since 2011 in some rural districts of Mozambique. The objective of this study is to describe the perceptions of community and institutional actors on malaria prevention interventions in rural Mozambique.

Methods: A descriptive qualitative study with a constructivist research paradigm was conducted in October 2018 in two rural districts of Zambezia Province with high malaria burden in Mozambique. Key-informant sampling was used to select the study participants from different actors and layers: malaria community volunteers, health professionals, non-governmental actors, and education professionals. In-depth interviews (IDIs) and focus group discussions (FGDs) were used to explore the perceptions of these actors. Classic content analysis looking for themes and semantics was used, and saturation guided the sample size recruitment.

Results: A total of 23 institutional actor IDIs took place, and 8 FGDs were held. Four themes emerged from the content analysis: (1) organizational and functional aspects; (2) knowledge about malaria; (3) perception of institutional actors on SBC and community involvement; and, (4) perception of institutional actors on the coordination and leadership on SBC malaria interventions. Community structures were well organized, linked to the health sector and operational, with good knowledge of malaria prevention. Education sector (school teachers) links with the health sector were in some cases good, and in other cases, non-existent. The importance of SBC interventions for malaria control was recognized by health actors, although the activities are delegated to non-governmental institutions. Domestic budgetary allocation constraints, quality of intervention and lack of SBC standard indicators were also identified by health actors as aspects for improvement.

Conclusions: Community structures, volunteers and primary school teachers have good knowledge on malaria prevention and regularly sensitize community members and students. Institutional health actors and partners recognize their role on malaria prevention activities, however, more interconnection is needed at different levels.

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Keywords: Perceptions, Institutional and community actors, Social and behaviour change, Malaria, Qualitative study, Mozambique

Background

Sub-Saharan African countries carry most of the worldwide malaria burden, accounting for more than 90% of cases and deaths [1]. Mozambique is one of the leading countries contributing to this burden, with 4% of the share of the global estimated malaria cases and deaths [1].

The Global Technical Strategy for Malaria 2016-30 (GTS 2016-30) established ambitious goals and targets for the period, and at least 90% of malaria mortality and incidence is expected to be reduced by 2030 when compared to 2015 levels [2]. A strategic framework to ensure programme alignment and implementation was developed, with three pillars and two supporting elements [2]. One of the elements is to strengthen the enabling environment [2] by several activities, including of paramount importance, multisectoral collaboration, empowerment of communities, and engagement with non-governmental organizations. The engagement of the Ministry of Education (and other ministries), and close collaboration with community leaders and non-governmental partners are crucial for success [2].

To have all community and institutional actors trained in malaria prevention and approaches of social behaviour change (SBC) can add value to malaria prevention interventions [3]. Health professionals, health community workers, community leaders, teachers, and malaria officers are considered the greatest influencers on malaria prevention practices [4]. SBC activities are implemented with a large number of community health workers and volunteers who are considered agents of SBC, playing a key role in formal health services, and a link between health/social services and the community [5].

In 2011, with the financial contribution of the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund), Mozambique started to implement a collaborative malaria project, a collaboration between the National Malaria Control Programme (NMCP) and civil society partners. The project was aligned with the country's strategic plan, filling the implementation gaps that the NMCP could not reach. Among other activities, the project scope was to train community volunteers and primary school teachers to sensitize community members and students in their geographical area of action. Other activities took place, such as promoting coordination meetings between health units and community structures, broadcasting malaria preventive messages through community radios, and distribution of bed nets.

Social Ecological Model (SEM) was implemented as the theoretical framework for this study. The SEM considers individual behaviour as the product of multiple individual, social and environmental influences, and it combines individual change in order to influence social context in which the individual operates [6]. According to this model, working with community actors and institutions (e.g., those in health and education) results in more significant change in individual and community behaviour [3, 7]. This study was conducted to understand the interconnections between institutional and community actors on malaria prevention activities. The aim was to describe the perceptions of community and institutional actors on malaria prevention interventions in rural Mozambique.

Methods

Qualitative approach and research paradigm

A descriptive qualitative study was conducted in October 2018 in two districts (Namacurra and Nicoadala) of Zambezia Province, in Mozambique. A constructivist research paradigm was used to allow for interactive and in-depth exploration of perceptions among different actors.

Context

Nicoadala and Namacurra are districts of Zambezia, the second-most populous province of Mozambique, located in the central region. In Zambezia, malaria prevalence in children under 5 years old is 44% [8], and 65% of the population has easy access to a health facility, i.e., less than a 30-min walk [9]. The illiteracy rate is 54%, being more prevalent in women (72%) than men (34%). Both districts were selected by researchers and provincial health authorities based on pragmatic criteria: high malaria incidence (both with more than 250 cases per 1000 inhabitants); having benefitted from malaria prevention SBC interventions led by implementing partners funded by the Global Fund, and resulting in significant case reduction from 2016 to 2018 [10–12]; and, easy access (fewer than 100 km from the capital).

Sampling strategy

Key-informant sampling was used to select study participants, looking at different actors and layers: community volunteers, health professionals (from central, provincial and district levels), non-governmental actors playing a role on malaria interventions, and education professionals. Key informants provided leads to other key

informants (i.e., snowball sampling). Saturation was the criteria for deciding when no further participant recruitment and interviewing was necessary.

Data collection instruments and technologies

Two interview guides were developed, for in-depth individual interviews (IDIIs) and focus group discussions (FGDs). IDII was used for health professionals and non-governmental actors. FGD was used for education professionals and community volunteers. For health professionals, non-governmental actors and education professionals, the guides were developed and conducted in Portuguese. For community volunteers, the FGD guide was developed in Portuguese, tested in the local language and after necessary corrections, all FGDs were conducted in the local language. All interviews were audio-recorded and transcribed. The interviews occurred in October 2018.

Units of study

Two units of study were considered: community actors and institutional actors. Community actors comprise community volunteers involved in malaria prevention sensitizations; these volunteers are organized into community structures. The community structures, composed of at least 15 volunteers, are trained (by non-governmental partners) on malaria knowledge and then sensitize the community in their geographical area. Institutional actors comprise health professionals (central, provincial and district levels) involved in malaria activities (promotional, prevention, diagnosis, treatment), non-governmental actors involved in malaria prevention activities, and education professionals: primary school teachers trained on malaria prevention (by non-governmental partners) and transmitting the knowledge to their students during classes.

Data processing and analysis

FGDs were translated from the local language (*Chuabo*) to Portuguese and then transcribed. Data were translated to English. Two researchers, trained in qualitative methods, analysed the transcripts and developed themes and codes based on frequencies, common word search, identification, and classification of themes and semantics (connections between themes in the text). Transcripts were coded independently. In cases where there were discrepancies in coding, the researchers re-analysed the transcript together to reach a consensus. The identified codes and themes were analysed using NVivo 12 software. The researchers could triangulate various sources to verify consistency and improve the validity of data. Saturation guided the quantity and quality of information analysis.

Techniques to enhance trustworthiness

The fact that some of the study participants were direct actors working on SBC interventions could be a source of bias. However, being key informants was also a strength of the study. To minimize bias being introduced by these actors, the interviewers were not involved in SBC interventions and had a very good background on qualitative interviewing techniques conducting the interviews in a very specific manner. Additionally, probe questions were introduced for later triangulation of the responses.

Results

Table 1 summarizes the main points collected in this study, organized by approach and target group. A total of 17 individual interviews of institutional actors took place. Of these, 5 were from central level, 4 from provincial level, and 8 from district level. A total of 7 FGDs were held. Of these, 4 were with FGD community structure volunteers (each FGD had 8–12 volunteers), and 3 with primary school teachers.

Themes from content analysis

Four themes emerged from content analysis: (1) organizational and functional aspects; (2) community structures and school teachers' knowledge about malaria; (3) perception of institutional and community actors on SBC and community involvement; and, (4) perception of institutional actors on the coordination and leadership on SBC malaria interventions.

Organizational and functional aspects of community structures and school teachers regarding malaria prevention

Community structures have regular monthly meetings with health facilities to discuss malaria issues and possible solutions. A summary report is written after each meeting to allow for follow-up. Most of the participants reported that they have a work plan and communication materials, such as malaria flipcharts and flyers, and also have T-shirts, caps, and *capulanas* (a traditional type of sarong considered a complete piece of clothing, that can either be used as a wrap-around skirt, dress or become a baby carrier) printed with malaria preventive messages and images, which serve as their identification as malaria community volunteers.

> *"We meet with the health facility once a month and we have to write a summary report after each meeting. We have a work plan, which is divided into groups, so that this group will work this week and another group will work another week. At the meeting, each group brings the difficulties encoun-*

Table 1 Qualitative approach, target groups, and main results

Actors	Central (donors, IP, MoH)	Provincial (IP, PHA)	District (DHA, CA, CHW, CS, ST)
Approach	Individual interviews	Individual interviews	Individual interviews—DHA and CHW FGD—CA, CS and ST
Target group (number of interviews)	MOH National Malaria Control Programme (1) Implementation partner (3) Donor (1)	Provincial Health Directorate Provincial health staff (2) IP (2)	District health staff: DHA staff—Namacurra (3), Nicoadala (3) CHW—Namacurra (1), Nicoadala (1) Community actors: CS working on SBC activities—Nicoadala (2), Namacurra (2) Primary ST working on SBC—Nicoadala (2), Namacurra (1)
Responsibilities	Update the SBC strategies and budget allocation per province Coordinate with donors and central IP	Design the provincial work, budget, and implementation plans	Field implementation
Main result: CS and ST: Organizational and functional aspects			CS and ST have regular meetings with DHA
Main result: CS and ST: Malaria knowledge	Design of the training curriculum	Training and monitoring/supervision	CA have good knowledge about malaria (mode of transmission, signs and symptoms, and where to seek treatment) More information is needed about the importance of IPTp
Main result: Perceptions about SBC activities and community involvement	SBC intervention is the key to malaria prevention and control	SBC intervention is very important	
Main result: Perception about coordination and leadership of the SBC malaria intervention	Lack of central level (MOH) commitment to enable them to take on the technical leadership of the action plans Involving communities at the grassroots is challenging SBC activities are not prioritized in terms of budget allocation	Quality of SBC interventions should be a focus area Lack of standard SBC key indicators Communication and coordination are the key for the success of SBC activities (there is a need for more coordination between the donors and all sectors—for example, education—not just the MoH)	

CA community actors, *CHW* community health workers, *CS* members of community structures, *DHA* district health authorities, *FDG* focal group discussion, *IP* implementing partners, *IPTp* intermittent presumptive treatment in pregnant women, *MoH* Ministry of Health, PHA, Provincial Health Authorities, *SBC* social behavioural change, *ST* school teachers

tered in the area where they worked. The material that was given to us was a blue capulana with illustrations and pamphlets, which we extended and used to explain. We have flipcharts, T-shirts, identification caps, capulanas, pens, and notebooks."
FGD1_CS Nicoadala

During the FGDs, some school teachers mentioned that there was a very strong and positive coordination between their malaria activities, the health facility, and health professionals. School teachers reported that they usually meet with the health facility on very specific dates every month. Participants showed their SBC materials such as: flyers and facilitator manual with malaria messages. They also requested more SBC materials, such as large-sized posters with illustrative images to facilitate visibility for children, especially those sitting at the back of the room.

"...We have met yes, monthly. Three times per month. We don't have a schedule. It has been a random process and when there was an opportunity, we met. Well, regarding the coordination with the health facility, it is very positive. At some point on this exchange of information, we get information on how malaria is transmitted and how to prevent it. We have used some leaflets to show some images in the lectures, orally we have also spoken explaining to the children and we have also the facilitator's manual. We need large posters to make it easy for kids who sit at the back to see."
FGD2_PR Nicoadala

In contrast, other school teachers reported that they never had a meeting with the health facility or staff to discuss malaria. They just worked with students and their caregivers and had a malaria flipchart to work with.

> *"..... No. We were only trained to reach students and their caregivers. We don't have any link with the health facility or health staff. As we said, we only use the flipcharts."*
> *FGD3_PR Namacurra*

Malaria knowledge of community structures and school teachers

Community structures volunteers and school teachers demonstrated relatively good knowledge about malaria, its mode of transmission, signs and symptoms, and where people should go as soon as they become ill.

> *".....We know that malaria is a disease that kills but also has a cure, we can medicate, or we can prevent by using these mosquito nets. In case you get the disease, you have to go to the health facility immediately to actually detect the disease. Just showing the symptoms (headaches, cold, joint pain, diarrhoea, and vomiting) is not enough because malaria manifests itself in various ways depending on one's body...."*
> *FGD2_PR Nicoadala*

> *"...Malaria is transmitted through the mosquito bite. An infected person transmits the disease to a healthy person. If not treated, malaria can be dangerous and fatal. To avoid malaria, I sleep every night under a mosquito net but not only this, I take care of my house environment (cleaning, eliminating stagnated water, and sometimes I burn some plants to avoid mosquitoes). The signs and symptoms of malaria include cold, vomit, shaking, the body is warm, headache, diarrhoea, and pain at the joints. Malaria has treatment and we need to go to hospital for treatment and there you can find the right medication. It's important to finish all the medication course they give there."*
> *FGD1_CS Nicoadala*

During FGDs, school teachers mentioned malaria in pregnancy and its importance. The majority of school teachers consider that the disease acts equally at all ages but in pregnant women, children and the elderly there is a need for careful consideration due to various factors, such as immunity. However, they acknowledged that there are still challenges regarding the adherence to the malaria intermittent presumptive treatment in pregnant women (IPTp), as many still need more information about the importance of taking IPTp for a healthy pregnancy and for the baby.

> *"...it has to do with immunity, because the pregnant woman shares her body with two people, she is a little weak, while the young man is there alone has nothing to join inside and always comes out on top. The old are also a little weak in immunity (...) pregnant women when they have malaria, if in the first months they may have abortion scares."*
> *FGD1_PR Nicoadala*

Several respondents described bed nets as the most used preventive method. Community structures reported that bed nets have a double function as they protect from mosquitoes and other animals. Indoor residual spraying (IRS) was considered not very useful by the community because it only works inside the house and people usually sleep outside because it is cooler. Other methods of mosquito avoidance included burning plants or using green leaves from trees to drive off mosquitoes.

> *"...in our community, the bed net is the most used to prevent malaria (...) because it is easy to use and protects us from other insects and animals during the night. We don't like PIDOM (IRS), it is only useful inside our house and we like to sleep outside when it is too warm. Of course, we also use our local methods such as burning plants and using the green leaves of our three to avoid mosquitoes."*
> *FGD1_CS Namacurra*

Perceptions of health institutional actors about SBC activities and community involvement

Institutional actors (implementation partners and focal points of the Ministry of Health) were unanimous in agreeing that SBC activities are important interventions for malaria control and to ensure community engagement. SBC intervention was ranked 5 out of 5 using a Likert scale with ascendant score. They also reported that community actors participate in SBC activities through a reciprocal relationship between implementation partners (non-governmental actors), community (community structures, local religious leaders, and others), and government (health sector, education sector, district government, and others).

> *"... Well, the SBC intervention is very important (...), through SBC we can design some strategy in how to engage the community at all levels, so this is a very key area, because this area designs the strategy to engage the community. This coordination between partners (...), community (...), and us from the system, I think the information arrives more easily to*

the community level."
IDII1_PHA Zambezia

"...I give 5, because the SBC intervention is the key to malaria prevention and control, but the SBC intervention should be with all stakeholders, both among health professionals, partners, and communities for prevention (...)"
IDII1_IP Maputo

Perceptions of institutional actors about the coordination and leadership of the SBC malaria interventions

Some challenges and barriers to community participation in SBC activities were pointed out by institutional actors such as: quality of communication of the implemented activities, the coordination at different levels of action (central and provincial level technical leadership), the lack of communication indicators that allow for measuring the results and impact of activities at provincial and district level, the limited budget allocated to communication activities, and project sustainability. Beneficiaries' ownership (and not government or partners' responsibility) was mentioned as a key point for sustainability of SBC interventions when there is lack of funds. They also pointed out that the focus should mainly be in the communication and coordination between all stakeholders.

"... I think what we are fighting (...) right now is the question of quality, quality of our actions in terms of SBC strategies that we are planning and implementing, how the information (key messages) are passing and spreading into the community, and not only ready to come up with community talks (...) we have to know if people really understand and have the right attitude, are they meeting what is required or not? (...) So, our big challenge is the quality of our intervention."
IDII1_IP Zambezia

"....there has been good progress on malaria prevention and SBC activities, there is a need to have a commitment from the Ministry of Health (MoH) to enable them to take on the technical leadership of the processes that are taking place right now so that actions are more coordinated, more reality-adjusted and more effective. Involving communities at the grassroots, this is the central challenge. Empower the MoH to be able to assume this technical leadership, ensure coordination and contextualization and ownership of activities by communities."
IDII2_IP Maputo

"...I think that starting from the principle that (...) I keep hitting the same key, I start from the principle of setting clear indicators, no institutional partner will actively engage in an activity that does not directly evaluate itself (...) But all we do so far, when we report to the health provincial directorate (DPS), there is no template to report communication activities, inclusive there is no clear standard indicators at the provincial and district level."
IDII4_IP Zambezia

"..... The SBCC activities aren't prioritized in terms of budget allocation."
IDII3_IP Maputo

"...Communication and coordination are the key words for the success of the activities. We have to take into account the relation between health professionals, patients, and communities."
IDII1_IP Zambezia

Discussion

This study shows that community actors, represented by malaria volunteers organized in community structures, have a functional structure with regular monthly meetings and share good knowledge on malaria prevention. School teachers are involved in malaria prevention activities, presenting good and basic knowledge on malaria prevention methods to vulnerable groups (women, children and the elderly). However, the link between school teachers and health facilities is only partially established, with some school teachers with very positive links and others without any. This link can allow school teachers to be more effective by disseminating health promotion information to the students and their families, which can help with prevention against malaria and result in improved school retention. Health actors (from the MoH and implementing partners) recognize the importance of SBC interventions for malaria control and to ensure community engagement, but they also pointed out institutional coordination and leadership as challenging, mainly in three aspects: (1) quality of intervention; (2) lack of SBC standard indicators; and, (3) budgetary constraints.

The community participation and functionality observed in this study is aligned with the SEM [3, 6, 7] and current strategies for malaria prevention and control. As per the GTS 2016-30, a close collaboration between communities and the health sector is desired and can add value in malaria prevention interventions [2–5]. Training of community structures on malaria prevention activities might ensure the community has knowledge about how to prevent malaria and how to get treatment for the disease when needed [3, 7]. Other studies found similar

(See figure on next page.)

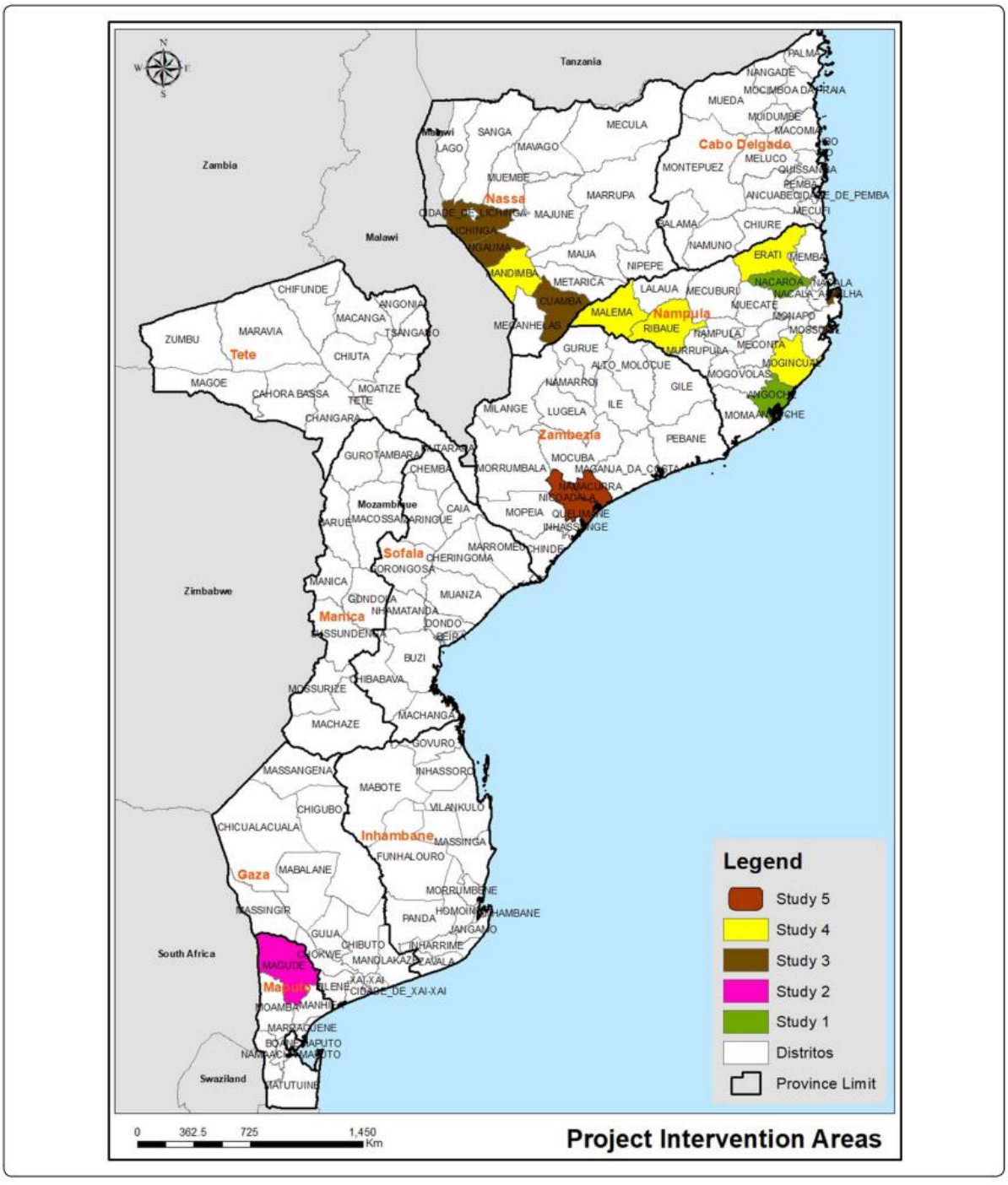
Fig. 1 Map showing studies on the effectiveness of malaria interventions in Mozambique. Study 1, a qualitative study conducted in Nampula, a northern province, similar to Zambezia, with high malaria prevalence. The study explored the gendered decision-making matrix for malaria prevention and treatment. Study 2, a qualitative study conducted in Maputo province, Magude district, and examined community perceptions of malaria to inform elimination efforts in Southern Mozambique. Study 3, a qualitative study that collected evidence about integrating malaria education into primary school activities in Nampula (Ilha de Moçambique; Nacala Porto) and Niassa (Ngauma, Cuamba, and Chimbunila districts) provinces. Study 4 was about mobilizing communities for malaria prevention and control in Mozambique (Nampula province: Erati, Malema, Ribáuè, and Mogincual districts; Niassa province: Mandimba District). Study 5 (this study), a qualitative study that analyses the perceptions and interconnections between different actors (institutional and community) implementing SBC interventions in Zambezia province: Nicoadala and Namacurra districts

results (Fig. 1). A study conducted in two provinces in the north of Mozambique (Nampula and Niassa) identified community structures, trained and allocated SBC material according to their capacity, skills and needs, and demonstrated that community structures were well organized, developed a community mobilization work plan where they delivered key malaria prevention messages, and progress reports discussing the challenges encountered during meetings with the health facility [13]. In these provinces, community structures were identified as the primary source of malaria prevention information, including the correct and consistent use of mosquito nets [13, 14].

The inclusion of primary school teachers as institutional actors widened the reach of SBC intervention, showing that actors other than those from the health sector can be successfully involved in malaria prevention, which is aligned with the SEM [3, 6, 7]. A study in Thailand demonstrated that a school-based malaria prevention approach through training teachers has been widely used for malaria control with positive outcomes in the behaviour of school children [15]. A learning brief published by the Malaria Consortium revealed a similar integration process of malaria education into primary school activities in Mozambique, concluding that educational and participatory malaria sessions in schools are feasible, providing an alternative source for increasing the knowledge of both pupils and teachers [16]. However, this approach required strengthening the coordination between the health and education sectors, which in some cases were good and in others were non-existent. This different pattern of coordination might be explained by an absence of a coordination platform, such as a Memorandum of Understanding (MoU) between the Global Fund and the Ministry of Education. The MoU would result in more intervention and monitoring of the provincial and district level by central level education sector actors.

Although SBC interventions were widely recognized by the different actors as an important aspect of malaria prevention and control, the following challenges were pointed out: quality of the interventions, lack of SBC standard indicators, and budgetary constraints. For high-quality SBC interventions integrated into the malaria prevention and control plan, it is important to define target groups and behaviour-improving targets to prevent, treat and control malaria [17]. A strong perception of the need for different approaches and innovative ways to communicate is felt by MoH actors. The Mozambican NMCP is currently revising its national malaria control communication strategy to ensure different and innovative high-quality interventions and the integration of key SBC indicators can be tracked and measured at different levels of implementation [18]. Community participation can be successful once SBC interventions are adequately planned and coordinated [13]. A classic example of good and successful coordination for malaria prevention and control is the advocacy and micro-planning process of a mass mosquito net distribution campaign, where actors at different levels planned and implemented the campaign together [19].

Budgetary allocation constraints were also pointed out as being challenging, mainly due to the fact that communication activities are funded to a lesser extent and are often subjected to budget cuts when priorities have to be re-set. Low domestic budgetary allocation follows a similar pattern. For example, Mozambique's domestic funding for the NMCP for the 2016-18 period was less than 2% of the Global Fund contribution, and less than 5% of the President Malaria Initiative (PMI/USAID) contribution [1]. In Cameroon, the National Malaria Strategic Plan (2014-2018) identified priority areas and government and partners allocated a lower budget for SBC interventions than for prevention and case management [20]. The US government allocated a higher budget for malaria case management and prevention than to SBC interventions in Mozambique [21]. For the period 2014–2019, the Mozambican NMCP allocated most of its resources, almost 79%, for medicines and commodities (mostly mosquito nets acquisition and implementation), and very few resources, 10%, for communications (SBC), media and outreach, with another 10% for programme management (including IRS and operation and coordination meetings at national and provincial level) [22].



Limitations

This study is based on self-reported information and lived experiences. Some respondents may have mentioned some ideal perceptions or experiences unrelated to their everyday life (Hawthorne effect). However, the triangulation of data collection techniques, the use of interviewers trained in these techniques, the introduction of probe questions, the diversity of actors interviewed, and the

triangulation of information among researchers allowed the potential bias to be minimized. Additionally, the study took place in only 2 out of 22 districts of Zambezia due to limitation in funding. Therefore, it is important to interpret the results with caution and without undue generalization.

Conclusion

Community structure volunteers and primary school teachers have good knowledge of malaria prevention and they regularly sensitize community members and students. The institutional health actors and partners recognize their role in malaria prevention SBC activities, and give credit to the SBC interventions for malaria prevention and control. Although malaria prevention SBC activities are currently extended to community members and school teachers, more interconnection is needed at different levels, which could be facilitated by the MoH. The quality of interventions, lack of communication standard indicators, and limited budget allocation for SBC intervention jeopardize and condition the SBC interventions.

Abbreviations

FGD: Focus group discussion; IDII: In depth individual interview; MoU: Memorandum of understanding; NMCP: National Malaria Control Program; PMI/USAID: President's Malaria Initiative/United States Agency for International Development; SBC: Social and behavior change; SEM: Social ecologic model.

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Authors' contributions

LSPF conceived and designed the protocol, participated in the interviewers training, performed data analysis, and wrote the manuscript. JAHA, MROM, and ZH supported the protocol design and critically reviewed the manuscript. NN supported data analysis, and critically reviewed and edited the manuscript. All authors read and approved the final manuscript.

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Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

Competing interests

The authors declare that they have no competing interests.

Ethics approval and consent to participate

The study was administratively authorized by the Provincial Health Directorate of Zambezia and also received authorization from the National Committee on Bioethics in Health (Ref 308/CNBS/2018). The study protocol approved by the National Committee on Bioethics in Health (Ref 308/CNBS/2018) specified that interviews would be recorded for future translation and analysis. The participants were informed about the objectives of the study and that the interviews were being recorded. They signed an informed consent document to ensure the willingness of participation and they were free to withdraw from the study at any time. Identification numbers were used instead of participant names to maintain the confidentiality throughout the study.

Consent for publication

Not applicable.

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Article 2 – Malaria Prevention Knowledge, Attitudes, and Practices in Zambezia Province, Mozambique

Highlights
What is already know about this topic? • Strategies for the control of malaria can be more effective, useful and valuable if prior studies are taken to explore and understand people's KAP. • SBC interventions are widely used in malaria prevention and control programmes to promote appropriate care-seeking and provision and utilization of insecticide-treated nets (ITNs) and indoor residual spraying (IRS). • SBC interventions play an important role in increasing knowledge and creating awareness and the demand for prevention and treatment programmes. • Communities with knowledge can influence practices in households and support malaria control. **What are the new findings?**

- The beneficiaries recognized the role of community and institutional actors in SBC interventions.
- Households members had good knowledge about malaria prevention and treatment.
- SBC messaging regarding severe malaria needs to be improved to strengthen understand of the need for quickly seeking malaria care services.
- Strategies and approaches in SBC to target greatest influencers is critical.
- People implementing SBC interventions in country aid in dissemination of information and are accepted interlocutors by the among beneficiaries.
- Improvement of the community actors curriculum training.

Contributions of the findings for the literature and policy makers

There is a critical information gap about outcomes and impact of SBC interventions in Mozambique. This study fills this gap and provides evidence for decision making by the National Malaria Control Program (NMCP), SBC intervention area in Mozambique. Additionally, this study can serve as evidence based to the update of the Malaria Advocacy and Communication Strategy (2020-2023) and create a standard SBC package.

These finds are of great interest for the World Health Organization Global Technical Strategy for Malaria 2016-2030 (GTSM). One of the pillar of this strategy is to create innovation and research which are aligned with the Mozambican NMCP goal for the elimination of malaria through implementation of SBC research to optimize the impact and cost-effectiveness of SBC new and existing tools, SBC interventions and strategies, strong political and financial commitments (SBC interventions advocacy), multi-sectorial approaches.

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Malaria prevention knowledge, attitudes, and practices in Zambezia Province, Mozambique

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Abstract

Background: In Mozambique, socio-economic and cultural factors influence the wide adoption of disease preventive measures that are relevant for malaria control strategies to promote early recognition of disease, prompt seeking of medical care, sleeping under insecticide-treated nets (ITNs), and taking intermittent preventive treatment for pregnant women. However, there is a critical information gap regarding previous and ongoing malaria social and behavioural change (SBC) interventions. The aim of this study is to assess the knowledge, attitudes, practices of beneficiaries of SBC interventions.

Methods: A descriptive cross-sectional survey was undertaken in 2018 in two rural districts of Zambezia Province, Mozambique. A structured questionnaire was administered to 773 randomly selected households. Respondents were the adult heads of the households. Descriptive statistics were done.

Results: The main results show that 96.4% of respondents recalled hearing about malaria in the previous 6 months, 90.0% had knowledge of malaria prevention, and 70.0% of preventive measures. Of the 97.7% respondents that had received ITNs through a mass ITN distribution campaign, 81.7% had slept under an ITN the night before the survey. In terms of source of health information, 70.5% mentioned the role of community volunteers in dissemination of malaria prevention messages, 76.1% of respondents considered worship places (churches and mosques) to be the main places where they heard key malaria prevention messages, and 79.1% asserted that community dialogue sessions helped them better understand how to prevent malaria.

Conclusions: Results show that volunteers/activists/teachers played an important role in dissemination of key malaria prevention messages, which brought the following successes: community actors are recognized and people have knowledge of malaria transmission, signs and symptoms, preventive measures, and where to get treatment. There is, however, room for improvement on SBC messaging regarding some malaria symptoms (anaemia and convulsions) and operational research is needed to ascertain the drivers of malaria prevalence and inform the SBC approach.

Keywords: Knowledge, Attitude, Practices, Mozambique, Malaria, Social and behaviour change

Background

In 2018, there were an estimated 228 million cases of malaria globally, the vast majority (93%) in the African region [1]; Mozambique is one of the six countries to account for more than half of all malaria cases. It is

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important to understand the factors that contribute to such a high disease burden in the country.

The World Health Organization's Global Technical Strategy for Malaria 2016–2030 is comprised of three major pillars with two supporting elements: (i) innovation and research, and, (ii) a strong enabling environment [2]. These supporting elements are aligned with the Mozambican National Malaria Control Programme (NMCP) for the elimination of malaria through implementation of research to optimize the impact and cost-effectiveness of new and existing tools, interventions and strategies, strong political and financial commitments, multi-sectorial approaches, stewardship of the health system, and capacity building development [3].

The NMCP prioritizes planning, implementation, monitoring, and evaluation based on an evidence-based, multi-cultural, and gender equality approach and an interpersonal communication and mass media (radio) approach [3]. However, there is a critical information gap about outcomes and impact of social and behavioural change (SBC) interventions in Mozambique [3]. SBC interventions are widely used in malaria prevention and control programmes to promote appropriate care-seeking and provision and utilization of insecticide-treated nets (ITNs) and indoor residual spraying (IRS). These interventions play an important role in increasing knowledge and creating awareness and the demand for prevention and treatment programmes [4]. Human behaviour is an important factor contributing to disease burden [5]. It is important to do formative research into various aspects that influence human behaviour, such as individual preferences, community characteristics, leadership practices, and quality of available goods and services, to determine their impact and to design effective SBC strategies and interventions [5]. Behavioural research is also useful for evaluation of SBC interventions.

In Mozambique, the goal of research on SBC interventions is to identify knowledge, attitudes, practices (KAP), and behaviours of communities, in order to define key strategies, target groups, cultural barriers, and community beliefs for improving malaria health outcomes through the adoption of positive health behaviours [3, 6]. This finding is similar to a study conducted in rural Tanzania which demonstrated that more research on malaria knowledge and beliefs of the community is necessary to obtain and maintain community engagement and participation in malaria control activities [7]. The importance of obtaining this knowledge was underlined in a study conducted in Southeastern Iran that showed that strategies for the control of malaria can be effective, useful and valuable if prior studies are taken to explore and understand people's KAP [8]. In addition, and encouragingly, a study from rural Uganda indicated that communities with knowledge can influence practices in households and support control of the disease [9]. In areas with high burden of disease it is important to have a clear understanding of the community to design good SBC interventions.

The present study was conducted with the aim of assessing the KAP of beneficiaries of malaria prevention SBC interventions in rural Mozambique.

Methods

Study area and design

This study was a cross-sectional survey carried out in November and December 2018 in Namacurra and Nicoadala districts of Zambézia Province. The districts were selected based on: (i) high malaria incidence; (ii) accessibility; (iii) population size similarities; (iv) geographic location; and, (v) experience with SBC interventions. The estimated population of Namacurra and Nicoadala is 390,410 and 270,825 inhabitants, respectively [10]. Both are rural districts with more than 60% of the population being illiterate and living in low social and economic conditions. The main public health problems are: malaria, HIV and diarrhoeal diseases [11]. In 2017, the incidence of malaria (per 1000 inhabitants) in Namacurra was 272 and in Nicoadala was 506 [12]. Both districts have targeted SBC and vector control interventions. SBC interventions included training of volunteers, local religious and community leaders, members of community structures, schoolteachers, and community health workers. These are all community actors that play an important role in dissemination of malaria prevention key messages. Additionally, different communication channels used to reach community members by these actors include meetings with health committee councils and health facilities, dissemination of standardized malaria SBC messages through community radios, door to door visits, sermons at worship places (mosque and church), community dialogues, focus groups discussions with adults, and dissemination of information, education and communication materials. Health committee councils, focal groups discussions (men to men, women), and community dialogues are part of the Mozambique National Health Promotion Strategy to promote and protect individual, family and community health by promoting positive health behaviours. Previously validated community dialogues are also used [13]. Community dialogues to promote healthy living habits are based on a set of 'Life Stories' prepared and used in a series of sessions to stimulate dialogue between people living in the same geographic area (neighbourhoods or communities). Additionally, women and men are given tools that enable them to reflect on how gender norms and social roles work in their lives, and the skills to begin a process of changing those norms, beliefs and roles that are

considered harmful to health and the environment, and to the social well-being of people and communities, while reinforcing those that are perceived as positive and to be maintained [13].

Many of these efforts, particularly promotion on net use, were connected to the ITN universal coverage campaign (UCC) distribution, which covered the population of each district in 2017, and through ITN distribution in antenatal care (ANC) services to pregnant women. UCC in 2017 distributed 161,591 ITNs in Namacurra (100% of target) and 125,161 ITNs in Nicoadala (86% of target) [14].

All localities of these districts were selected for the study. Within each locality, household sample size was calculated by dividing the total sample size of the district by the number of existing localities. Households, the sampling units used in this study, were selected using a systematic random sampling method, after determining the total number in each locality.

Sample size

Sample size was calculated based on the equation:

$$n = Z^2 \times p \times (1 - p)/d \quad (1)$$

where: n = sample size; Z = 1.96 (assuming a level of confidence of 95%); p = proportion = 0.5; d = error = 0.05. A total of 768 households were required for the study, 384 per district. The households were divided between localities with sample size equal to the proportion of households per locality. Additionally, five households were added during data collection, resulting in a study population of 773 households.

Selection of households

In each locality, the households were selected based on the following strategy: first, a household list (sampling frame) was developed and a number was assigned to each household; then, the sample interval (number of households divided by sample size) was computed and a random start number was chosen; finally, from this first random number, households were systematically selected using the sampling interval until the calculated sample size was met.

Data collection and measurement

A structured, close-ended questionnaire was pre-tested and administered by previously trained local interviewers. The first section of the questionnaire included standardized socio-demographic questions based on the Malaria Indicator Survey 2018 and the following parts of the questionnaire assessed the head of the household malaria KAP/behaviours, and information channels. The questionnaire was designed in Portuguese, and the interviews were conducted in the local language, *Enlowe*. The questionnaire was pre-tested in a district similar to the study districts. The head of the household was defined as the primary decision-maker in the family and the household and as an individual living in the household and having meals from a common cooking facility [15]. A responsible adult, 18-years or older, was appointed to participate in the interview in the absence of the head of the household.

Variables

The variables selected for this study were: place of residence, age, gender, level of education, number of people that live in the household, information channels, malaria KAP.

Household inclusion criteria

The inclusion criteria used to select the households for the study were: (i) households from the selected districts; (ii) household members living in the district from 2011 to 2017 (this period covers the SBC interventions funded by different malaria donors); (iii) interviewee at least 18 years old (head of the household), regardless of gender; (iv) community located in the study districts in which SBC interventions were performed by local community actors (volunteers from community structures, schoolteacher facilitators, activists, and faith leaders); (v) mosquito net mass distribution campaigns; and, (vi) presence of community radios.

Outcomes of interest

The measured outcomes were: (i) percentage of people who remember hearing or seeing a message about malaria in the previous 6 months; (ii) percentage of people with favourable attitudes towards ITNs, malaria-related practices (use of ITNs, taking anti-malarials) and services (timely demand for health, institutional or community services when noticing signs and symptoms of malaria); (iii) percentage of people who believe the majority of their friends and communities practice the behaviours (using ITNs and seeking counselling and health care services); (iv) percentage of people who identify the mosquito as a cause/vector of malaria; (v) percentage of people who recognize the main signs and symptoms of malaria; (vi) percentage of people who know about treatment for malaria; (vii) percentage of people who know malaria prevention measures; (viii) percentage of households with at least one ITN; (ix) percentage of households with one ITN for every 2 people; (x) percentage of people with access to mosquito nets; xi) percentage of people who slept under an ITN the night

before the survey; and, xii) use/access ratio of mosquito nets: behaviour indicator.

Data and statistical analysis

After conducting the study, the previously coded questionnaires were reviewed to verify the responses and their validation; later, the data were entered in SPSS for Windows, version 23.0 (IBM; Armonk, NY, USA). Data analysis was based on descriptive and inferential statistical analysis,

Results

Sociodemographic characteristics of participants

A total of 773 household heads were interviewed of whom 59% were females and 41% males (Table 1). The mean age was 34.6 years (range 18–90 years; standard deviation: 7.7). About 27.4% were illiterate, 63% had completed primary school, and 8.4% had basic education. About half of the respondents (49.9%) lived in households with 4 to 6 people, a quarter (26.3%) in households composed of 1 to 3 members, and the remainder in households with 7 members or more (23.8%). Detailed socio-demographic characteristics are presented in Table 1.

Table 1 Sociodemographic characteristics of respondents in the selected households from Nicoadala and Namacurra

Characteristics	N = 773	Percentage (%)
Household size		
1 to 3	206	26.6
4 to 6	385	49.8
≥ 7	182	23.5
Total	773	100.0
Household members frequently present in the last 6 months		
1 to 3	203	26.3
4 to 6	386	49.9
≥ 7	184	23.8
Total	773	100.0
Gender		
Male	317	41.0
Female	456	59.0
Total	773	100.0
Age (years)		
< 18	26	3.4
18 to 24	209	27.0
25 to 34	175	22.6
35 to 49	206	26.6
50 to 64	114	14.7
65+	27	3.5
Unknown	16	2.1
Total	773	100.0
Level of education completed		
No education	212	27.4
Primary and elementary	487	63.0
Basic	65	8.4
Secondary	8	1.0
Tertiary and university	1	0.1
Total	773	100.0

Knowledge regarding malaria prevention and treatment

Table 2 shows that within 773 household heads, about 96% reported having heard and 3.3% never having heard about malaria. However, the majority of respondents (96.4%), recalled hearing about malaria in the previous 6 months.

Most respondents (83.4%) reported that malaria is transmitted through mosquito bites. Regarding recognition of malaria symptoms, headache was pointed to as one of the main symptoms of malaria by both male (48.9%) and female (48.7%) respondents. Body pain was the second most mentioned symptom by 39.1% of males and 34.2% of females. About 3.9% of respondents were unable to identify any symptoms of malaria. In Table 3, it can be noted that the most frequently reported malaria preventive measure was the use of ITNs (72.2%). More men (76%) reported the use of an ITN than women (70%), burning garbage and creating smoke to chase away mosquitoes (35%) and improving the cleanliness and hygiene of house and yard (24%) were other preventive measures mentioned by more than a fifth of respondents. IRS was one of the least mentioned forms of prevention (4.3%). The use of insecticide products and repellents were rarely mentioned, 3.1% and 1.8%, respectively.

Practices of malaria prevention, ownership and use of bed nets in target communities

About 80% of respondents reported having at least one bed net hanging at home, 21% reported having only one, 37.2% having two, 26.7% having three, and 13.3% having

Table 2 Reported exposure to information about malaria

Variable	N	Percentage (%)
Ever heard of malaria?		
Yes	695	96
No	26	3.3
Without answer	52	6.7
Total	773	100.0%
If yes, any exposure in the previous 6 months?		
Yes	695	100
No	0	0
Total	695	100.0

Table 3 Level of knowledge about malaria

Type of Knowledge	Male		Female		OR	95% CI	Total	
	N = 317	(%)	N = 456	(%)			N = 773	(%)
Reported cause of malaria transmission								
Mosquito bite	271	85.5	374	83.4	1.68	1.20–2.34*	645	83.4
Garbage/dirt near the house	84	26.5	135	29.6	1.17	0.84–1.61	219	28.3
Others (fleas/lice)	49	15.5	67	14.7	0.94	0.63–1.41	116	15.0
Does not know	17	5.4	31	6.8	1.28	0.70–2.36	48	6.2
Recognition of symptoms								
Body pain	124	39.1	156	34.2	0.81	0.60–1.08	280	36.2
Headaches	155	48.9	222	48.7	0.99	0.74–1.32	377	48.8
Joint pain	74	23.3	133	29.2	1.36	0.97–1.88*	207	26.8
Diarrhoea	39	12.3	86	18.9	1.66	1.10–2.49*	125	16.2
Vomit	46	14.5	114	25.0	1.96	1.34–2.86*	160	20.7
Lack of appetite	49	15.5	80	17.5	1.16	0.79–1.71*	129	16.7
Cough	5	1.6	7	1.5	0.97	0.30–3.09	12	1.6
Nasal congestion	1	0.3	1	0.2	0.69	0.04–11.1	2	0.3
Does not know	9	2.8	21	4.6	1.65	0.74–3.65	30	3.9
Reported malaria preventive measures								
Burn leaves/eucalyptus	14	4.4	40	8.8	2.08	1.12–3.89*	54	7.0
Insecticide serpentine/spray	4	1.3	20	4.4	3.63	1.23–10.7*	24	3.1
Mosquito net	241	76.0	319	70.0	0.73	0.53–1.01*	558	72.2
Repellent	3	0.9	11	2.4	2.59	0.71–9.35	14	1.8
Burn garbage	112	35.3	156	34.2	0.95	0.70–1.28	268	34.7
Traditional treatment	3	0.9	6	1.3%	1.39	0.34–5.62	9	1.2
Improve home hygiene	79	24.9	109	23.9	0.95	0.67–1.32	188	24.3
Spraying/fumigate the house	8	2.5%	25	5.5	2.24	0,99–5.30*	33	4.3
Improve individual hygiene	16	5.0%	15	3.3	0.65	0.31–1.31	31	4.0
None/does not know	23	7.3%	42	9.2	1.29	0.76–2.20	65	8.4

OR odds ratio, *CI* confidence interval

* Significant association ($p < 0.05$)

four or more. Most of the respondents (97.7%) reported that they received bed nets through the mass universal coverage ITN distribution campaign, and 82.7% reported sleeping under the bed net the night before the survey (Tables 4 and 5).

Beneficiaries' attitudes towards malaria prevention, diagnosis and treatment

From the 721 respondents that reported exposure to information about malaria, 86.3% felt confident about their knowledge of how to prevent malaria and 96.4% knew where to get treatment. Regarding the use of bed nets at night, 96.9% of respondents considered it an important prevention from malaria. Most of the respondents (69.2%) reported that family members, friends and neighbours influence their decision-making regarding their health and 23.6% disagreed with this assertion (Table 6).

Table 7 shows attitudes regarding measures adopted for malaria diagnosis and febrile symptoms. From the 721 heads of household that had heard of malaria, 539 (74.8%) reported a household member with a fever in the previous 6 months. In 409 households a family member was reported to have had a fever in the two weeks prior to the survey, among whom 395 reported seeking counselling and treatment from health facilities, 10 from the market, and 4 from other places. Participants reported that they sought care at the health facility services because it had better quality/was more efficient (66.1%), and was less expensive (22.0%). The person who decided where to seek counselling and treatment was generally the head of the household (72.9%), followed by the spouse of head of household (16%), then the person with fever (9.0%). From 395 households, 359 reported a rapid diagnostic test (RDT) was taken by a health worker and the remaining 39 were not tested. Of 359 respondents who were tested,

Table 4 Treated bed net ownership

Variables	N	Percentage (%)
Households has at least one bed net hanging at home		
Yes	618	79.9
No	103	13.3
No answer	52	6.7
Total	773	100.0
Number of bed nets at home		
One bed net	131	21.2
Two bed net	230	37.2
Three bed net	165	26.7
Four bed net	53	8.6
Five or more	29	4.7
Don't know	10	1.6
Total	618	100.0
Source of bed net		
Universal coverage campaign	604	97.7
Antenatal care	4	0.6
Don't know	10	1.6
Other places	0	0.0
Total	618	100.0

89.7% obtained a positive result, 0.8% negative, and 9.5% did not know their result.

Attitudes of beneficiaries regarding malaria prevention

As shown in Table 8, around 70.5% of respondents felt that community volunteers were ready to disseminate key malaria prevention messages. From 721 respondents, 76.1% identified worship places (churches and mosques) where they heard key messages on malaria prevention. Some 79.1% strongly agreed that community dialogue sessions helped them better understand how to prevent malaria. For the respondents, volunteers/activists/teachers played an important role in the dissemination of key malaria prevention messages.

Discussion

Most malaria prevention strategies are centred on human behaviour and SBC interventions are a key part of the NMCP malaria strategy. This study assessed malaria prevention and treatment KAP in two rural Mozambican districts, Namacurra and Nicoadala.

The results show that almost all respondents had heard about malaria in the previous 6 months and those in these rural Zambezia districts have at least some knowledge of malaria causes, symptoms, treatment, and preventive measures. These results are similar to those obtained in other studies [7–9, 15], implying that the SBC campaigns of previous years have been successful at reaching people in rural Mozambique and somewhat successful at disseminating education messages. However, it is important to note that although most respondents knew that malaria is transmitted by the mosquito bite, they did not associate it with other people (i.e., with "bites of mosquito which bit a malarial patient"). This lack of knowledge has been reported before [8, 15], and is an indication that messaging on this aspect of transmission needs to be improved. Headaches were identified as the main symptom of malaria, similar to a study conducted by Khumbulani et al. [16]. However, despite relatively good knowledge of malaria symptoms and signs, respondents failed to name anaemia and convulsions. This lack of information could lead to a delay in seeking appropriate care from health facilities or community health workers. It is important to improve the training of local health community actors and subsequently improve dissemination and explanation to beneficiaries.

Most respondents felt confident and knew about malaria prevention methods and where to seek treatment, and considered the use of bed nets important to prevent and protect from malaria, which is similar to a study conducted in Ethiopia where the majority of respondents considered the mosquito net a protective measure against mosquito bites [17]. ITNs are a key part of malaria prevention strategies. ITNs are distributed through key channels, with most distributed through mass distribution campaigns and through antenatal care consultations [1]. In Mozambique 68% of the population sleeps under a bed net (40% under LLINs). These results show that previous SBC campaigns on bed nets have likely been successful in rural Zambezia as this were among the most recognized prevention form among the respondents, most of them having at least one bed net hanging at home which they use every night.

Table 5 Bed net usage

Did you sleep under a bed net the night before	Male		Female				Total	
	Freq. (N = 301)	Perc. (%)	Freq. (N = 420)	Perc (%)	OR	95% CI	Freq. (N = 618)	Perc. (%)
Yes	224	86.8	287	79.7	0.55	0.35–0.85*	511	82.7
No	34	13.2	73	20.3			107	17.3

* *p* value 0.003

Table 6 Attitudes of beneficiaries regarding malaria prevention

Variables	N	Percentage (%)
I feel confident that I know how to prevent malaria		
Disagree or strongly disagree	70	9.7
Neutral	29	4.0
Agree or strongly agree	622	86.3
Total	721	100.0
I know where I can get treatment for malaria		
Disagree or strongly disagree	16	2.2
Neutral	10	1.4
Agree or strongly agree	695	96.4
Total	721	100.0
The use of a bed net every night is important so that I can protect myself from getting malaria		
Disagree or strongly disagree	17	2.4
Neutral	5	0.7
Agree or strongly disagree	699	96.9
Total	721	100.0
My family, friends and neighbours influence my decision-making regarding my health		
Disagree or strongly disagree	170	23.6
Neutral	52	7.2
Agree or strongly agree	499	69.2
Total	721	100.0

Additionally, most reported sleeping under a bed net the night before the survey, which is similar to other studies conducted in the country [7, 15, 18].

Despite the wide availability of bed nets in the region and the indication from the results that the community uses them, the prevalence of malaria in Zambezia Province in children aged 6 to 59 months (using the malaria diagnostic test) increased from 38.3% in 2011 [19], 40.2% in 2015 [20] and 39% in 2018 [15]. Whilst efforts to support improved and regular use of nets by all is required, which may need more nuanced messaging for different audiences, other methods of vector control may also need to be investigated for a further reduction in prevalence.

In this study, health facilities were most commonly used for malaria treatment. This observation is similar to other studies [7, 21], and it was pointed out as being the more effective and less expensive place to go to. The decision about where to go to receive treatment was the responsibility of the head of the household. Data show that family members, friends and neighbours were the greatest influencers on decision-makers regarding health of members of the household, similar to a study conducted in Nigeria, where it was indicated that family members play a role on health decisions [22]. This reinforces the importance of having strategies and approaches in SBC to target greatest influencers.

The majority of respondents consider community volunteers/activists/teachers are very well trained and they play an important role in disseminating key malaria preventive messages. These findings are collaborated by a study conducted in Kenya which showed that community actors are very well accepted during community implementation of SBC interventions [23]. Worship places (churches and mosques) are where respondents heard malaria preventive messages, and community dialogue sessions helped them better understand how to prevent malaria. Similarly, in a study conducted in Nampula Province, Mozambique, respondents affirmed that community dialogues helped communication and ultimately encouraged malaria-related behaviour [24]. These results indicate that the people implementing SBC interventions in Mozambique aid in dissemination of information and are accepted interlocutors by the beneficiaries.

This study has some limitations: it targeted the head of household as a proxy to KAP held by all members of a household. Ideally, a broader sampling method across the range of adults within Nicoadala and Namacurra communities should have been used. However, this was not possible due to funding constraints. The results may not accurately represent the community's perspectives as a whole. Another limitation of the study is that people in these communities could have obtained information from sources other than the formal SBC interventions, e.g., social media or informal conversations. One cannot attribute all of the success to previous formal SBC interventions. All reported behaviours were self-reported and may have been affected by social desirability bias. Additionally, the questionnaire was not designed to document net quality. Low net quality might have influenced the effectiveness of the intervention, as noted in other studies from Mozambique [25].

Conclusions

This study confirms that SBC interventions carried out in rural Mozambique have had many successes. Namely, most people have knowledge of malaria prevention and treatment. The study shows that beneficiaries have bed nets and widely report the use of them. Beneficiaries recognized the role of community actors (teachers, community health workers, religious leaders) in dissemination of malaria key preventive messages. It was identified that there is room for improvement on SBC messaging regarding malaria symptoms. Specifically, that people recognize anaemia and convulsions as malaria symptoms so that they quickly seek health care services. Moreover, the study raises the need for further research into the main drivers of malaria prevalence in the country and the need to conduct operational research to refine SBC approaches.

Table 7 Beneficiaries' attitudes towards malaria diagnosis and treatment

Variables	N	Percentage (%)
Household member had a fever in the previous 6 months		
Yes	539	74.8
No	175	24.3
Does not know/does not remember	7	1.0
Total	721	100.0
Household member had a fever in the previous two weeks		
Yes	409	56.7
No	273	37.9
Does not know/Does not remember	5	0.7
Total	687	95.3
Did you look for someone for malaria treatment?		
Yes	409	100
No	0	0
Total	409	100
Where did you seek counselling and treatment?		
Health Facility	395	96.6
Market	10	2.4
Another place	4	1.0
Total	409	100.0
Reason sought advice or treatment from this provider		
More efficient/competent/better quality	261	66.1
Less expensive	87	22.0
Close to their residency	36	9.0
Other reason	11	3.0
Total	395	100.0
Who decided where you went to for counselling/treatment?		
Head of household	290	72.9
Wife of the head of household	67	16.8
Mother-in-law	1	0.3
The person with the fever	36	9.0
Other	4	1.0
Total	395	100.0
Reported use of malaria test		
Yes	359	90.2
No	39	9.8
Total	395	100.0
Malaria test result		
Positive	322	89.7
Negative	3	0.8
Do not know	34	9.5
Total	359	100.0

Abbreviations

HH: Household; ITNs: Insecticide-treated nets; SBC: Social and behavioural change; UCC: Universal coverage campaign; ANC: Antenatal care; NMCP: National Malaria Control Programme; ITN: Insecticide-treated net; IRS: Indoor residual spraying; KAP: Knowledge, attitude and practice; RDT: Rapid diagnostic test.

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Table 8 Attitudes of beneficiaries regarding malaria prevention

Variables	N	Percentage (%)
I feel that community volunteers are prepared to spread key malaria prevention messages		
Disagree or strongly disagree	86	11.9
Neutral	76	10.5
Agree or strongly agree	559	77.5
Total	721	100.0
Did you receive sufficient information from the activists?		
Disagree or strongly disagree	113	15.7
Neutral	102	14.1
Agree or strongly agree	506	70.2
Total	721	100.0
Most of my neighbours, my community and my family including myself have the ability to recognize the signs and symptoms of malaria		
Disagree or strongly disagree	90	12.5
Neutral	46	6.4
Agree or strongly agree	585	81.1
Total	721	100.0
Worship places (churches and mosques) are where I hear malaria prevention messages		
Disagree or strongly disagree	133	18.4
Neutral	39	5.4
Agree or strongly agree	549	76.1
Total	721	100.0
Community dialogue sessions helped me better understand how to prevent malaria		
Disagree or strongly disagree	65	9.0
Neutral	86	11.9
Agree or strongly agree	570	79.1
Total	721	100.0
Volunteers/activists/teachers play a key role in spreading key messages on malaria prevention		
Disagree or strongly disagree	55	7.6
Neutral	65	9.0
Agree or strongly agree	601	83.4
Total	721	100.0

Authors' contributions

LP conceived and designed the study protocol, analysed the data, drafted the manuscript, and made final revisions. JA and MROM supported the protocol design, performed sample calculations, analysed data, and reviewed the manuscript. RZ supported the design of data collection tool (questionnaire) and reviewed the final manuscript. ZH critically reviewed the manuscript. VM and AM analysed the data and reviewed the manuscript. NN contributed to the writing, editing, and revision of the manuscript. All authors read and approved the final manuscript.

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Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

The study was administratively authorized by the Provincial Health Directorate of Zambezia and received authorization from the National Committee on Bioethics in Health (Ref 308/CNBS/2018).The participants were informed about the objectives of the study. They signed an informed consent document to ensure the willingness of participation and they were free to withdraw from the study at any time. Identification numbers were used instead of participant names to maintain the confidentiality throughout the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Article 3 – "We have this, with my husband, we live in harmony": exploring the gendered decision-making matrix for malaria prevention and treatment in Nampula Province, Mozambique

Highlights
What is already know about this topic? • Gender-related factors, including the influence of a partner, family members and social norms, affect a woman's decision to seek prompt health care. • Gender dynamics significantly influence the uptake of measures to prevent, treat and control malaria. • Gender inequities and implicit social hierarchies that favour men influence uptake of malaria-related behaviours. **What are the new findings?** • The structure of the household influenced malaria prevention and treatment. • It is vital to continue to support and encourage care seeking by single mothers, who are the most vulnerable to neonatal fatalities.

- Messages emphasizing prompt care seeking at the facility for fever also need to emphasize supporting and enabling women to get there in the first place, circumventing time-consuming, outward-facing negotiations that prevent women from accessing time care.
- Traditional birth attendants and healers play important roles in women's inward lives.
- The gendered decision-making matrix, can help programme designers and implementers as well as participants recognize and support positive factors and challenge negative ones.
- Media campaigns could promote harmonious gender equal households by modelling couple communication and shared decision-making, which would contribute to improved malaria-related and other health-related outcomes.

Contributions of the findings for the literature and policy makers

Gender is a cross-cutting issue and should be consider when planning, implementing and monitoring SBC interventions in malaria prevention and control.

Although there are studies that explore gender dynamics and malaria, socio-economic and cultural factors influencing health behaviours for pregnant women, individuals and family members in using preventive measures is still a challenge for NMCP in Mozambique.

The findings of this study will create evidence based on the need of conduct a national assessment in gender and malaria in country, to inform community-based strategies and mass media campaigns for improve the malaria prevention and treatment. Additionally, will allow also to integrate gender (tools, materials, indicators, training curriculum) into the national SBC malaria prevention and control package.

These finds are of great interest for the World Health Organization Global Technical Strategy for Malaria 2016-2030 (GTSM), Roll Back Malaria (RBM) Partnership's Action and Investment to Defeat Malaria 2016–2030 strategy and others countries NMCP has been demonstrating gaps in integrating gender inequality into its strategies and policy, which will also contribute to a very weak coordination between different sectors and ministries.

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"We have this, with my husband, we live in harmony": exploring the gendered decision-making matrix for malaria prevention and treatment in Nampula Province, Mozambique

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Abstract

Background: Conceptualizing gender dynamics and ways of bridging entrenched gender roles will contribute to better health promotion, policy and planning. Such processes are explored in relation to malaria in Mozambique.

Methods: A multi-method, qualitative study using focus group discussions (FGDs) and in-depth interviews (IDIs) explored the perspectives of community members, leaders and stakeholders on malaria. The study was conducted in Nampula Province, in an intervention district for the Tchova Tchova Stop Malaria (TTSM) gender-sensitive community dialogues, and in a non-intervention district.

Results: Participants (n = 106) took part in six FGDs and five IDIs in each district. Those exposed to TTSM commonly stated that the programme influenced more equalitarian gender roles, attitudes and uptake of protective malaria-related practices. These positive changes occurred within the context of an observed, gendered decision-making matrix, which aligns inward- or outward-facing decisions with malaria prevention or treatment. Decisions more dependent on male or elder sanctioning at community level are outward-facing decisions, while decisions falling within women's domain at household level are inward-facing decisions. Related to prevention, using bed nets was largely an inward-facing prevention decision for women, who were generally tasked with hanging, washing and making nets usable. Net purchase and appropriation for malaria prevention (rather than for instance for fishing) was men's prerogative. Regular net use was associated with sleeping together more regularly, bringing couples closer. Attending antenatal care to access intermittent preventive treatment during pregnancy was often an outward-facing prevention decision, under the purview of older, influential women and ultimately needing sanctioning by men. With respect to seeking care for malaria symptoms, women typically sought help from traditional healers first. This inward-facing treatment decision was within their control, in contrast to the frequently transport-dependent, outward-facing decision to attend a health facility. Sharing decisions was described as a feature of a "harmonious household," something that was said to be encouraged by the TTSM intervention and that was both lived and aspirational.

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Conclusions: TTSM community dialogues helped communication on both interpersonal (couple) and community levels, ultimately encouraging malaria-related behaviours. Leveraging ways of bringing men and women together to share decision making will improve malaria intervention success.

Keywords: Community dialogues, Gender roles and decision making, Communication, Malaria prevention

Background

Although important progress in malaria prevention and treatment has been achieved, African regions still account for 92% of the global burden of malaria cases and 93% of malaria deaths worldwide [1]. Pregnant women and children under the age of 5 years remain the most vulnerable to malaria, especially when inadequate nutritional conditions further weaken their capacity to fight the disease [1]. Vulnerability to malaria is therefore driven by complex epidemiological, environmental and social factors that are tied to specific settings.

Mozambique is among the low-income countries that have achieved Millennium Development Goal 4 target set in 2000 to reduce under-5 mortality by over two-thirds [2]. Yet, malaria remains an endemic disease in Mozambique [3], where there were an estimated 10,025,823 cases and approximately 14,713 deaths in 2017 [1].

Malaria is a leading cause of maternal and child mortality in Mozambique. Between 2007 and 2011, verbal autopsy data revealed that malaria was responsible for 23% of all maternal deaths [4]. Among children aged 1–4, malaria led to 51% of all deaths [5], while parasitaemia also disproportionally affected children living in rural areas (47%) compared to those in urban areas (19%) [6].

There are three widely implemented protective behavioural interventions for malaria prevention: (1) consistent use of an insecticide-treated net (ITN); (2) antenatal care (ANC) visits administering intermittent preventive treatment in pregnancy (IPTp); and, (3) use of indoor residual spraying. When prevention fails, prompt effective confirmatory diagnosis and treatment at a health facility or from a community health worker is advised. Context and cultural experiences may facilitate or constrain uptake of these behaviours. Consequently, understanding decision-making processes and autonomy is central to understanding related patterns of these behaviours as well as ways of influencing them.

For instance, Nhatave [7] found that gender-related factors, including the influence of a partner, family members and social norms, affect a woman's decision to seek prompt health care. In addition, multiple factors including education level, perceived disease severity, distance to facilities, costs of health care, socio-economic status, and experience when seeking health care are all known to influence care seeking [8, 9].

Mozambique is classified as having high access to public facilities (>65%) [10] and in rural Zambézia, Mozambique, 72% of caregivers reported seeking advice for fever in children under 5, with 91% reportedly doing so at a health facility [11]. Nationally, while 66% of households owned at least one ITN, only 48% of children under 5 and 52% of pregnant women reported sleeping under an ITN in households that had at least one of these [6].

In addition, the proportion of women in Mozambique with at least one ANC visit is high at 93%, yet the percentage with four or more visits is only 55% [6]. Although IPTp has been implemented as routine practice and is expected to be provided during women's ANC visits [12], it is concerning that the proportion of women who received two or more doses of IPTp during their last pregnancy increased from only 20% in 2011 [13] to 34% in 2015 [6].

Tchova Tchova Stop Malaria community dialogue programme

The current study sought to explore key protective malaria-related behaviours, unpacking in particular the decision-making process in relation to an existing intervention conducted in the Nampula Province of Mozambique. Beginning in 2016, the Health Communication Capacity Collaborative (HC3) undertook the *Tchova Tchova* Stop Malaria (TTSM) gender-sensitive community dialogue programme, which was implemented in Zambézia, Nampula and Tete provinces. TTSM was implemented in selected districts based on local malaria burden in consultation with the provincial department of health.

TTSM was adapted from a successful HIV programme in Mozambique, *Tchova Tchova Histórias de Vida: Diálogos Comunitários*, meaning Push Forward Life Stories: Community Dialogues, first launched in Mozambique in 2008 [14, 15], and the *Prevenção Activa e Comunicação Para Todos* or Active Prevention and Communication for All project in 2010 [16, 17]. Central to each of these programmes lies the participatory, community-level, bottom-up approach, which encourages normative changes and changes in attitudes through public dialoguing and community engagement on sensitive topics.

TTSM community dialogue sessions were implemented by trained facilitators from the community itself.

The sessions were delivered with the aim of engaging men and women, and especially couples, as well as neighbours and wider community members in discussions on how to create more equal gender dynamics. This included improving communication and sharing of decisions, even sharing of domestic duties between men and women in the home, while also encouraging the use of products and services to combat malaria. Fun and interactive activities and video materials were used to this effect (http://www.infosaude.gov.mz/wp-content/uploads/2019/09/Pacote-comunitario-tchova–tchova-stop-malária.pdf). In sum, the programme emphasized community mobilization to improve prevention and treatment seeking for malaria with a concurrent aim of addressing gender inequalities.

Exploring gender dynamics

Research across African settings such as Kenya [18], Uganda [19] and Tanzania [20] has shown that gender dynamics significantly influence the uptake of measures to prevent, treat and control malaria. In Mozambique, a country which scores near the bottom of the Human Development and Gender Inequality Index [21], gender inequities and implicit social hierarchies that favour men influence uptake of malaria-related behaviours. This is because women in Mozambique are known to shoulder the majority of the burden that comes with running a household and caring duties [22].

Most of the malaria interventions at community or facility levels in Mozambique have been designed to reach women, often through multiple ANC visits, and children under 5 and pregnant women are consistently most likely users of ITNs [23]. A recent qualitative study in Zambézia Province found that barriers to ANC included gender inequality in decision-making, and the responsibility for pregnancy being seen to have to be largely shouldered by the woman [24]. In addition, the study highlighted community beliefs that ANC uptake, particularly if supported by a male partner, reflected a woman's HIV-positive status. In Sofala Province, it was found that women who reported intimate partner violence had lower odds of achieving at least one ANC visit, four or more ANCs visits and of receiving ANC from skilled personnel [25].

Since interventions have not typically sensitized men in the importance of ongoing ANC visits and targeted them with malaria messaging, even though men have long been known to play a critical role in decision making about health care [26], it is time to consider how this oversight may have limited the success of malaria programmes. It can also be argued that, overall, female-centred programmes have missed the opportunity to promote strengthening couples' shared decision making and to fully tackle reducing routes of transmission by excluding men.

The current analysis explores how dominant, patriarchally sanctioned hierarchical experiences and decision making shape the uptake of malaria-related behaviours in two rural districts in Nampula Province, Mozambique. The study also explores how participation in TTSM influenced such decision making. The results will inform future communication campaigns, including community-based strategies to improve malaria prevention and treatment.

Methods

Study aims

The study aims were to explore gender dynamics and processes in relation to the uptake of the following malaria-related practices: (1) Use and misuse of nets; (2) Pregnant women's visits to health facilities for ANC/IPTp; (3) Fast, effective care seeking for fever at a health facility *versus* from a traditional healer. These behaviours were explored in relation to gender and decision making (in both districts) and the effect of TTSM (in the intervention district).

Study setting

The study was conducted in two purposively selected rural districts in Nampula Province (Fig. 1): Angoche, the

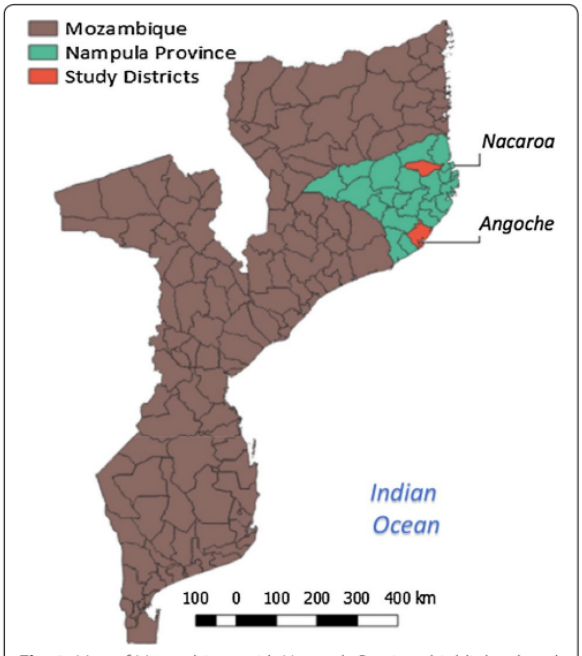


Fig. 1 Map of Mozambique with Nampula Province highlighted, and study districts indicated

intervention district that participated in malaria community TTSM dialogues, and Nacaroa, the comparison, non-intervention district. Angoche is a coastal, peri-urban district (est. population = 399,092 in 2017) that is predominantly Muslim [27], with strong matrilineal influences. In contrast, Nacaroa is a rural district (est. population = 145,643 in 2017) close to the large port city of Nacala that is more Christian [28], with some matrilineal influences and households [29]. Nampula Province has one of the highest malaria prevalence rates in Mozambique (66%) [6] and is also the most populous province in the country, comprising 21% of the population [30]. The Mozambique Ministry of Health and the National Malaria Control Programme selected the province as the first province to be targeted for the implementation of the 2016/2017 national universal ITN distribution campaign to ensure all families have access to ITNs.

Study design

Based on a social constructivist approach, this qualitative study used both focus group discussions (FGDs) and in-depth interviews (IDIs) to understand participants' views and gendered malaria-related experiences. Using these two qualitative methods allowed for interactive as well as more in-depth exploration of gender-related decision making for malaria prevention and treatment.

Study population

A purposive sample was selected from each district. The research team conducted six FGDs in each of the district, three among men and three among women. Each FGD included eight community member participants. Five IDIs with key influencers were also undertaken with community leaders, mothers-in-law, matrons (senior women leaders in communities), traditional healers, and traditional birth attendants (TBAs) in each district. The study population is described in Table 1.

The FGDs were conducted with equal numbers of men and women in the community (n = 48 each). However, community leaders and traditional healers included in the study were all men, and all matrons and TBAs were women. These gender assignations frame community actors' roles and must be born in mind throughout data collection and analysis.

Data collection instruments

This study used a semi-structured, paper-based topic guide for both the FGDs and IDIs to capture participants' knowledge base, normative influences and gender roles in decision making. While knowledge and attitudes relating to each of the behavioural areas were considered, these are not the focus of the current study. Instead it focused on data elicited and coded around the following specific topics:

Gender roles in decision-making with respect to malaria-related practices

Information, decision-making, and performance of behaviours (contrasting all perspectives: men's, women's and community actors')

- Information access, gender dynamics, and effects on decision making (in general)
- Use and misuse of nets
- Pregnant women going to the facility for ANC/IPTp
- Recognition of symptoms and decisions to get care

Effects of the TTSM community dialogues (perspectives from intervention site only)

- Information transmission and programme messaging that worked well/not so well in TTSM

Table 1 Study population sampled from Angoche and Nacaroa in Nampula Province

Study population	Method	Nampula Province		Totals
		Angoche (intervention)	Nacaroa (comparison)	
Men (20–49 years)	FGD	3	3	6 (48 people)
Women (18–44 years)	FGD	3	3	6 (48 people)
Community leaders (male)	IDI	1	1	2
Traditional healers (male)	IDI	1	1	2
Traditional birth attendants (female)	IDI	1	1	2
Mother-in-law (45–60 years)	IDI	1	1	2
Matrons (female)	IDI	1	1	2
Total FGDs		6 (48 people)	6 (48 people)	12 (96 people)
Total IDIs		5	5	10
	Total			106 people

- Changing views on men's and women's roles in TTSM
- Ways of being more concordant in decision making

As described above, perspectives on gender and decision-making were asked of all participants in relation to malaria-related behaviours of interest while topics relating explicitly to exploring the effects of the TTSM programme were asked of the programme participants only.

Data collection procedures

Two data collection teams were created, one for each district, each with one team leader (MEY or JBC), one coordinator and three facilitators. Most of the data were collected in the local dialect, Makua, otherwise in Portuguese. The groups and interviews were run in the language chosen by the participants so that they were able to express themselves in the one that they were most comfortable with. Male and female facilitators were matched to participants where possible. All verbatim transcripts of the audio recordings were compiled in Portuguese by facilitators and approved by team leads. Written informed consent and permission to audio record was sought prior to IDIs and FGDs.

Data cleaning and preparation

All data were audio recorded, transcribed and checked for quality and consistency. The team leads were both bilingual in English and Portuguese, and one lead additionally spoke Makua. This facilitated quality checks and checking for meaning against audio recordings, and also translation of written data, as elaborated below. To supplement the audio recordings of the IDIs and FGDs, field notes were taken by the facilitators and shared with the study coordinators and team leads. The field notes were systematically compiled by topic and stored with the verbatim transcripts.

The data preparation method was adapted from Halcomb and Davidson [31], and expanded notes were extracted from the field notes and verbatim transcripts and compiled in English by one bilingual analyst (MEY). The data were organized according to the specific topics listed above in ATLAS.ti for Mac (version 1.5.4). A non-Portuguese-speaking senior social scientist (ZJH) conducted quality checks of the expanded English notes on about one-quarter (n = 6) of the data, checking against the full verbatim transcripts, which were translated into English.

Methods of analysis and reporting

This study used the framework analysis method [32, 33], indexing the data according to the specific topics listed above, while checking if new areas beyond those in the existing list emerged. No additional topics emerged. Two analysts indexed (MEY and ZJH) the data in ATLAS.ti, which were exported for charting and thematic coding into Microsoft Word files. Each topic was then manually coded, and emerging themes were summarized using salient, illustrative quotes. Thematic coding of the data was divided between the three team members (ZJH, MEY, RA), all trained in qualitative data analysis. At least 15% of the data were double-coded across sections and analysts reached a consensus on the meaning of the data. ZJH refined all the agreed analysis and finalized the reporting.

In the following sections, major themes are reported in **bold** and supporting sub-themes in *italics*. The more dominant themes are supported by a wider range of reported sub-themes. Where relevant that a consensus or a shared view was emerging by a majority this is indicated. Minority voices are also highlighted. The origin of quotes coming from the intervention site in Angoche (A) or the non-intervention site Nacaroa (N) are indicated accordingly. Analysis is reported according to the following structure: lived experiences of gender roles, the decision-making matrix, and effects of the TTSM community dialogues.

Ethical review and approvals

The Johns Hopkins University institutional review board and the local research ethics committee in Mozambique (*Ministério da Saúde, Comité Nacional de Bioética para a Saúde*) reviewed and approved the study in March 2017. This study was also reviewed by the Centers for Disease Control and Prevention (CDC) and determined to be human subjects research with non-engagement by CDC staff.

Results

Lived experiences of gender roles

Data saturation was achieved in the synthesis and extraction of all major themes. Four major themes were identified in relation to the lived experiences of how gender roles influence malaria-related decision making. These relate to (1) **structure of the household** where the decision is made; expected (2) **gender power dynamics** within the couple when a decision is required; (3) **the degree to which men and women are receptive to information**; and, the concept of (4) a **harmonious household**, which was described as men

and women being able to successfully dialogue, reach shared decisions, and take action together.

The **structure of the household** influenced malaria prevention and treatment. For instance, women-headed households had different decision-making structures than those headed by men, but sometimes still relied on male sanctioning. In such situations an uncle who lived nearby might be solicited as part of a decision-making process. He could also be deferred to as the key decision maker on important decisions in the woman-headed household.

In both study sites, irrespective of household structure, net use decisions, in particular, were often said to be *shared with women, mainly, "by default".* That is, since women were the ones who hung nets, washed and repaired them, put the children to bed, and were left to organize the use of nets in the course of managing the household, they held decision-making authority in this realm:

> *"Men say that they don't have time (to help around the house), they need to be tending the farm". (N, women FGD, 02)*

Women's control rested at the household level, but overall, *husbands and older men usually said to be important in purchasing nets, using them properly in the first place (e.g., not as fishing nets), and accessing them and other types of care through health services.*

In certain instances, the decision-making power could occasionally *be shifted from the man to the mother-in-law, particularly if the extended family lived together or close by.* The mother-in-law was sometimes said to be responsible for helping decide when and with whom her pregnant daughter-in-law would go to ANC and whether her grandchildren with malaria symptoms would seek treatment at the health facility or from a traditional healer and follow traditional practices. Participants also mentioned that the mother-in-law would be the one who

> *"takes her daughter-in-law, when pregnant, to ANC if her son is not around." (N, mother-in-law IDI).*

In younger couples,

> *"if the wife gets sick, the man goes and informs his mother (asking her permission) and if he has money, he goes to the health facility with his wife." (N, women FGD, 03)*

> *In the matrilineal households in the intervention site, a participant also noted the following: "Who motivates (the woman to seek ANC) when she is pregnant for the first time? It is her husband's grandmother and her older sister-in-law." (A, mother-in-law IDI).*

Gender power dynamics result from gender norms and expectations imposed by the community. *Men often referred to women as secondary to them men, describing them as simply "followers" of men, acting "like their shadow".* Men explained that they therefore needed to take the leadership role to counter-balance women's poor decision making. "*Bad" "female" decisions were attributed to women seeking treatment for malaria with a traditional healer* instead of going to a health facility despite the perception by male participants that it was a well-known fact that the facility setting was the option providing better care. Women, however, were quick to explain that these decisions are influenced by the lack of money for getting to the facility and the need to seek alternative transportation methods when it is far away. Women often mentioned that *decisions on spending any significant amount of money needed to be shared.*

In regard to **receptivity to information,** *women were consistently described as more open than men.* Men were just as consistently described as less interested than women or disinterested altogether, as one traditional healer summarized it

> *"mostly they (the men) scorn that information, only some follow it." (A, traditional healer IDI).*

Pregnant women are also the ones described as attending weekly educational sessions with a traditional birth attendant or a nurse, not the men. *Men tended to describe themselves as more "intellectual" than women*, appearing more critical of intervention messages. One participant stated that "there is a war" to convince men to follow advice such as going with a woman to the health facility (A, matron IDI). For translating knowledge to action, men were said by some to need extra reinforcement to change their way of thinking, one example was given thus:

> *"(before, when) we would get the nets, after getting home my husband would sell some; others he took to fishing. We had no nets, and (then) he got sick. We went to the hospital, did a test, and (found out he) had malaria. Then he understood." (A, women FGD, 03).*

In addition, feedback both from community leaders and matrons also suggested that changing men's minds in particular "is a battle". These study participants noted that explicitly and repeatedly showing men the benefits of ascribed behaviours is needed to change them. Also, the perception that men were somehow more knowledgeable than women suggested that men would receive messages better "man to man". That said, the study team identified a positive dynamic in a number of participants referring to aspiring to have a **harmonious household**

which manifested as healthy interactive decision making between couples and greater gender equity, whereby men notably played a more supportive role helping in the home. In these instances, men were described as wanting to contribute, for example

> *"They are involved in the process of reducing (their child's) fever (through the use of a wet rag) and then take the child to (seek care)." (N, men FGD, 02).*

The notion of a harmonious household was referred to mostly by the female respondents in FGDs and IDIs, at both sites, and recognized as a cultural phenomenon. *Harmonious households* were viewed as a product of harmonious relationships, in which men have good feelings towards their partner and their children. A few men who had participated in TTSM noted that

> *"if there is no collaboration, it is difficult to prevent malaria." (A, men FGD, 01) and two are better than one. When there are two, then they can help each other." (A, men FGD, 01).*

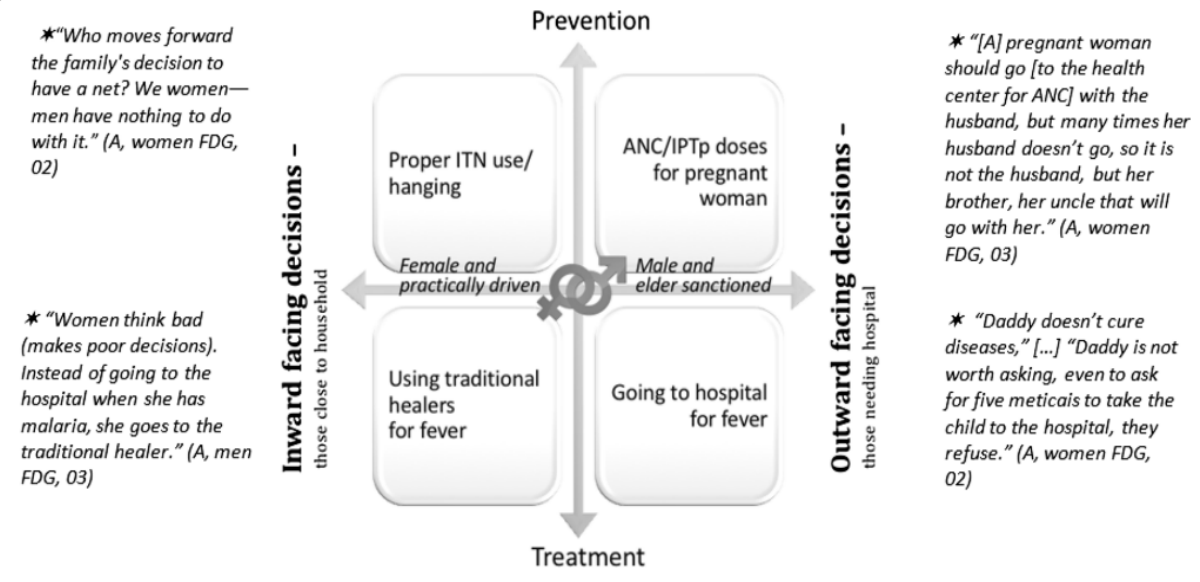
The gendered decision-making matrix

Building on the above analysis, the study team extracted (5) a **gendered decision-making matrix** explaining emergent findings. This matrix was structured according to prevention or treatment behaviours and whether the prevention or treatment behaviours were inward or outward facing. Inward-facing behaviours relate to household-level factors under the influence of women, while outward-facing behaviours relate to activities away from the household that may require male and elder sanctioning. Outward-facing decision sanctioning was also sometimes under the purview of mothers-in-law or grandmothers, propagating hierarchical decision making within patriarchal systems, to which they themselves were also exposed during their own pregnancies. The gendered decision-making matrix is presented in Fig. 2. The illustrative quotes and sub-themes and related explanations anchoring them are described in turn.

Inward-facing prevention: proper use of bed nets

The proper use of nets was mostly seen as women's business, although procurement of nets was not necessarily so. Proper use and care of nets was possible when women were given demonstrations regarding net importance and correct use as well as given access to nets, as evidenced by data from the TTSM intervention area. In both districts, registering the house for nets and collecting them during community distributions were reported to be the man's task. In instances when there are not enough nets for all the household members and couples need to purchase additional nets, if they are available for sale, that purchase is the responsibility of the men:

> *Women "don't buy it, they don't have money for that." (A, men FGD, 01).*



A=Angoche district; ANC=antenatal care; FDG=focus group discussion; ITN=insecticide-treated net

Fig. 2 The gendered decision-making matrix for malaria prevention and treatment

Nevertheless, women repeatedly highlighted the notion that

> *"Who moves forward the family's decision to have a net? We women, men have nothing to do with it." (A, women FGD, 02).*

Community actors reiterated this point:

> *"In a couple, the element that demands the use of the mosquito net is the women." (A, IDI traditional healer).*

This is partly maintained because the pregnant woman is the one who picks up the net from the health facility outside of the context of mass distribution campaigns. If the government distributes nets, women wait to get one. For instance, a woman from the comparison site noted that she is the one that must wait for the net because her husband

> *"doesn't have the time." (N, women FGD, 01).*

Overall, since the women were mostly said to be the ones to collect the nets and men were mostly said to be working and outside the home anyway, the men rarely interfered with the decisions about net use. Concurrently, once the net was in the hands of women, unless men had been particularly sensitized to be supportive (e.g., by being tasked with repairs), they had little to do with how the nets were used. Although some shared decision making was needed at the point of entry into the house, in particular to convince men that gains could be had by proper use rather than reselling or using for agriculture, its subsequent daily use for malaria prevention was mainly an inward-facing prevention decision.

Outward-facing prevention: going to the facility for ANC/IPTp

Decision making for pregnant women going to the health facility for ANC/IPTp was consistently positioned as *an outward-facing prevention decision* that fell more under older and influential women to motivate but relied on men to fully sanction. Overall, many women claimed that men were difficult to persuade to endorse the decision, let alone accompany them:

> *"Not all men go (with women to hospital for ANC checkups) - they are very rude men - [...] but when he is sick, I should go with him!" (A, women FGD, 03).*

Men often put men's motivation to support these visits down to a desire for a check-up for other diseases, especially HIV. ANC was sometimes referred to as primarily for checking

> *"the whole family [...] if our bodies are okay." (N, men FGD, 01); and in particular for making sure the baby is doing well: "because both men and women need to do tests and check if they have or do not have diseases to be able to have a healthy baby." (A, men FGD, 02).*

There was an uncomfortable tension between health services providers' recommendations to attend ANC with a partner and a few women in practice reporting feeling forced to do so to receive care, pushing some to "invent" replacement partners:

> *"Because pregnant woman should go (to the health facility for ANC) with the husband, but many times her husband doesn't go, so it is not the husband, but her brother, her uncle that will go with her." (A, men FGD, 03).*

When asked, women mostly claimed they were accepting of IPTp, but men across the FGDs said women may fear going to the health facility for ANC, thinking they could be forced to take HIV medicine or cholera medicine. There was also a fear of delivery at the health facility due to rumours and consensus that some babies could have been mixed up at birth. These fears were said to at times push women to reject ANC and instead go to traditional healers. It was also consistently acknowledged that women felt most comfortable with the traditional healers because they knew them well, and felt they could trust them.

Outward-facing treatment: fast, effective care seeking at the health facility

Women throughout the FDGs explained that some fathers will accompany their children to the health facility, while others may just give money when a visit is necessary. Nevertheless, many women complained about their partners' indifference and weak motivation to sanction health facility visits, as illustrated by one woman from the intervention site:

> *"Daddy doesn't cure diseases. [...] Daddy is not worth asking, even to ask for five meticais (Mozambique currency) to take the child to the hospital, they refuse." (A, women FGD, 02).*

As such, going to the health facility for malaria symptoms emerged as an outward-facing treatment decision prioritized by women, but under the decision-making authority of men and elders. As another woman put it:

> *"Who initiates the conversations to take the child to the hospital? It is me [...] the woman is the one that starts (the process of care seeking) because she has a mother's feeling." (N, women FGD, 01).*

Inward-facing treatment: care seeking from traditional healers

In contrast, women were often said to be the ones to make the decision to seek care from a traditional healer. One man asserted,

> *"(A) woman thinks 'badly' (makes poor decisions), instead of going to the health facility when she has malaria; she goes to see a traditional healer." (A, men FGD, 03),*

ignoring popular advice. Another explanation is that the option of a traditional healer is a more inward-facing treatment decision, allowing women to circumvent male sanctioning and seek the care options that are within their immediate control.

Effects of the TTSM community dialogues

Major themes relating to the effects of TTSM community dialogues that emerged included the programme as a powerful (6) **source of change in relation to both perceptions of gender roles and how decisions are taken in the household**. These changes came from greater understanding and reported harmony within couples who agreed to share more of the domestic and household tasks. Changes were also put down to the sensitization of men, which aimed at normalizing their role as supporters of malaria prevention and treatment both inside and outside the home. In addition, there was (7) **strong community diffusion of TTSM messages**.

TTSM was viewed as a **source of change in relation both to perceptions of gender roles and how decisions are taken in the household**. The majority of participants in the programme activities identified TTSM with the changing roles and the promotion of a more egalitarian relationship between men and women. Significantly, the most widely retained TTSM message was that both men and women must participate in domestic chores:

> *"The conversation of Tchova Tchova that I heard was that everybody must help at home." (A, women FGD, 01).*

A consistent theme shared from a few of the men that participated in the programme was that these changes led to relationship "improvement". These men talked about helping their wives with household chores and affirmed that it is not necessary to

> *"wait for the woman to cook" because a man can "prepare a meal and save some for his wife to eat" (A, men FGD, 01).*

Some women that participated in the community dialogues emphasized equal rights between men and women:

> *"Tchova Tchova says that women have rights, men have rights". (A, women FGD, 01).*

In some cases, this message did lead husbands to start performing some of the household chores, not forcing their wives to do all these chores alone and expecting them to also go to the *machamba* (agriculture fields) to undertake heavy farming work on top of these existing tasks. For these women, this shift in expectations was experienced as a big and very welcome change:

> *"I thank (the programme) because he does not leave all the housekeeping with me. He helps me." (A, women FGD, 01).*

Nevertheless, changes that seek to modify cultural traditions are still sometimes difficult to assume in everyday life. As such, at times defence of the traditional gender roles was also stated by one man:

> *"Here in Mozambique, men are at work and women at home." (A, men FGD, 02)*

as he explained the gendered structure of activities. Another man claimed that rough treatment of women is for a good reason since it is up to men to assert dominance:

> *"The pregnant woman cannot be offended (if treated roughly) even if she is your wife." (A, men FGD, 03).*

This statement came from the intervention site, reflecting that not all men were convinced by TTSM messages, despite being sensitized to them. In the comparison non-intervention site, men's and women's traditional roles were also sometimes openly supported. For instance, when asked how to approach decision making to prevent malaria, men answered,

> *"We remind our women to do the cleaning every day. To not leave pots with water for three, four days with dirty water." (N, men FGD, 02).*

According to them, their women always follow these "commands".

Correspondingly, women's discomfort in addressing gender inequalities, and forcing discussions about health and care seeking in particular, was at times also notable, with some women themselves pointing to the discomfort of men who quit the programme:

> *"They didn't like this advice of helping women at home and they quit. It didn't give them any advantage, that programme [...] They say, 'Help women?*

She is the one that married me!." (A, women FGD, 02).

In contrast, there is no doubt that these participants felt that a harmonious relationship was fundamental to being able to share tasks, make joint decisions, and support each other's health. Even in the nonintervention group, one woman responded proudly to the question

"But what kind of husband goes with their wives to the hospital?" with "We have this, with my husband, we live in harmony." (N, women FGD, 01).

The concept of a harmonious household was a consistent thread throughout this study. Some men appeared to sincerely want to improve their relationships, help relieve their wives of household burdens, and make their homes peaceful and free of arguments. Accordingly, as participants shared their post-TTSM experiences, it also emerged that the intervention had positive effects beyond changing attitudes and sparking more discussions. From men's narratives, it emerged that they not only wanted to be more supportive of prevention and treatment seeking for family members because of the sessions but had also been prompted to abandon the idea that men are always strong and never must look for help themselves:

"A long time ago, before participating in the (community dialogue) sessions with the facilitators, when I felt malaria symptoms, I preferred to go for a run to get rid of the pains, but I didn't know what I was doing [...] I shouldn't be doing it, I should go to the hospital." (A, men FGD, 03).

The acceptance of men bringing their sick children to the health facility or accompanying their pregnant wife to her first appointment was presented as a positive change toward a more harmonious relationship:

"Men did not like to take the children to the hospital; they had the idea that only women should do that. But now with this 'Stop Malaria' (TTSM), men change their minds about this." (A, men FGD, 02).

Overall, doing things together as a couple had a unifying effect, such as sharing a bed net:

"In my case, we slept separated, and when we got the net, we sleep together; it made us closer." (A, women FGD, 03). And among women:

"We all use the nets and share our secrets on this." (A, women FGD, 01).

In cases in which men were said to be unsupportive, women talked about living in a fractious home environment characterized by abuse, jealousy and husbands denying paternity.

A notable sub-theme that resulted from **community diffusion of TTSM messages** was the community "taking action" to help neighbours make the "right" decisions. A few participants expressed the following sentiment:

"If we see that our neighbour's patio is cluttered, we advise them to tidy it to prevent malaria, and then we inform them that clutter creates (potential for standing water and can lead to) breeding sites for malaria." (A, women FGD, 01).

These community actions also explained how some messages had become so diffused:

"We get out and go to the neighbour's house. When we get there, and we find someone with malaria, we advise them to take the child to the hospital. We inform them that malaria is not cured at home, only at the hospital." (A, women FGD, 01).

Sleeping under the net became part of the *shared discourse of the TTSM participants* because not only were they told of its benefits but also because both women and men said that, thanks to the programme, they had learned how to use their nets properly (hanging, washing, repairing, etc.). The demystification of net use thanks to TTSM was discussed across FDGs, for instance:

"To me it helped because before I didn't use (the net) because of fear, but now I sleep under the net with my kids, and I like it." (A, women FGD, 03).

Another important sub-theme about diffusion was that it consistently emerged that intervention participants needed reassuring that it is acceptable to share knowledge about something you have not experienced, and despite not having experienced it you can still learn about it and can be confident to share that knowledge. It appeared as a cultural barrier that knowledge without experience is considered *fofoca* (irrelevant gossip).

Overall, TTSM encouraged participants to override the rules about who can say what, making programme messages the topic, rather than focusing on personal experiences, and enabling better communication between neighbours. This collective shift in ways of communicating was shown to be a powerful tool for change.

Discussion

The main findings from this study on malaria-related decision making in rural Nampula Province of Mozambique underscore the role of social norms and community, family hierarchy and gendered power dynamics in influencing behaviour. The introduction of the gendered decision-making matrix, organized by

inward- and outward-facing behaviours, contributed to a clearer understanding of gendered decision-making pathways. In other African contexts, care-seeking decisions are also likely to be determined by a sequence or chain of decisions in which women often have little or no control, with men typically weighing in on the final decision, particularly if services require a monetary payment [34, 35].

This study found that a majority of intervention participants considered TTSM to be a helpful because it promoted relationship shifts toward a more egalitarian, harmonious household. The programme was also said to contribute to changing malaria prevention and treatment behaviours and attitudes that support them. In particular, this study found that TTSM affected how decisions are made in the household, encouraging more partner collaboration in many areas of life. While making decisions about malaria-related practices remained a complex process, both men and women who participated in TTSM referred more often, relative to the comparison group, to sharing of household chores, sharing nets, valuing shared decision making, and having male involvement in care seeking for malaria.

Nevertheless, the positive context of a strong, balanced and harmonious partnership between men and women was recognized and celebrated in both study settings. The concept of the harmonious household was notable in Mozambique in early gender-related studies by the Center for Communication Programs [36]. It was also identified in other African settings, such as Kenya [37], which similarly coined the term and identified its importance in daily life and couple communication relating to family planning. In Senegal, this concept was named as defining the opposite end of the spectrum to gender-based violence [38]. Leveraging the harmonious household concept appeals to both men's and women's aspirations and desires. Still, men themselves experience particular dilemmas in taking responsibility not just for their families, but also for their own health.

It transpired in this study, and is also well known, that structural gender norms have long upheld the notion that men must be "strong" and are less vulnerable to diseases than women and children. Moreover, frequent accessing of health facilities is regarded as typical for women, but not for men [39]. TTSM's addressing the need for men to also seek care for malaria led to men discussing positive changes, such as no longer trying to simply 'sweat out' the disease through vigorous exercise, but getting proper treatment instead. Therefore, men need to be encouraged in health care seeking for themselves, as well as in supporting their families in this area. Using respected male role models in an effort to reach men more meaningfully will serve future gender-sensitive programmes well [40].

Nevertheless, including men should not happen in the absence of gender synchronization. That is, working with men and women should happen in tandem and not in a silo-ed manner [41] because the latter approach has had mixed success. As such before making programmatic recommendations, future programme managers should explore when and under what circumstances it is useful to encourage men to accompany their partners or wives to the clinic, taking into consideration their life circumstances, resources needed and evidence for the benefits of partner presence during such visits. Evidence that women feel that attending ANC with a partner is a "requirement" to receive care shows how policies intended to support one goal (i.e., HIV and STI testing) can have unintended and detrimental effects for another.

The current study shows that it is vital to continue to support and encourage care seeking by single mothers, who are the most vulnerable to neonatal fatalities [42]. Messages emphasizing prompt care seeking at the facility for fever also need to emphasize *supporting and enabling women to get there in the first place*, circumventing time-consuming, outward-facing negotiations that prevent women from accessing timely care. Women may attempt to offset these vulnerabilities by reaching out to their social networks. Traditional birth attendants and healers play important roles in women's inward lives. In Zambia, for instance, these trusting relationships have been shown to often be preferred by women in relation to their reproductive health [43]. In Kenya, such traditional services have been found to be more accessible because deferred payments or payments in kind may be possible [44], perhaps with produce or gifts that women make themselves.

For the most vulnerable and oppressed women, building capacity for traditional birth attendants and healers, as well as ambulant services, to bring information, diagnostics and treatment into the home is essential. For example, a study conducted in Bogoma, Kenya, concluded that it is women, not men, who have the most difficulty in recognizing malaria symptoms. The study also found that symptoms such as seizures and high fever may be attributed to supernatural causes by the community, rather than malaria. Such beliefs may further encourage some women to look for a traditional healer before seeking health care services [45, 46].

A well-rounded communication campaign should include information for traditional healers and community health workers alike. Additionally, it would depict gains that can be attained by changing behaviour, yielding rewards for both men and women, and depicting explicitly what these simple changes can bring. In particular, the notion of the harmonious household should be harnessed to enhance and encourage better decision

making, especially in already stable relationships. Other key messages that should be incorporated into future messaging include the time- and money-saving advantages of malaria prevention, including avoiding illness and time out of work and promoting wellness, among others.

Strengths and limitations of the study

This study considers not only the malaria-endemic context, for which much is descriptively known, but also the cultural and psycho-social influences that are crucial to behaviour change yet have to date been under-researched in relation to gender and social norms. This study utilized a comparative approach, illustrating consistent themes across intervention and non-intervention sites in relation to gender norms and aspirations, and provided evidence on TTSM effects by exploring perspectives particular to the intervention setting, using a gender-sensitive lens. This study does not however examine significant difference in exposed or unexposed groups, this would require a quantitative study design, ideally with a longer time lapse after exposure, which is recommended for future directions of TTSM-related research.

Analysis is also limited to the defined study populations, and by translated data in 'expanded note' form, that may have masked nuances in meaning and hindered more in-depth analysis. While the study achieved saturation on major themes, it is recommended that future studies explore in greater detail supporting sub-themes related to the gendered decision-making matrix, such as the dynamics that underpin it, and contexts in which it is applicable, or in which it can be differently configured.

Conclusions

This study, guided by the proposed gendered decision-making matrix, contributes to a better understanding of men's and women's decision making regarding the prevention and treatment of malaria, in part by highlighting inward- and outward-facing behaviours. This helps identify where gendered pathways could be interrupted, redirected or, if health promoting, supported. Overall, these data suggest that the matrix can help programme designers and implementers as well as participants recognize and support positive factors and challenge negative ones.

The focus on the inward/outward gendered structuralizing of decision making highlighted the central need to counteract men's underexposure and traditional lack of involvement in public health programmes in the Mozambique context. Given that similar situations are likely to be present in many other African settings [47], field testing this matrix in other countries and adapting it as needed would be useful.

This study also provides evidence regarding the ameliorating effects of participation in TTSM dialogues on malaria-related household decision making. The results should be used to inform both community-based strategies and mass media programming to improve malaria prevention and treatment. These insights suggest that media campaigns could promote harmonious gender-equal households by modelling couple communication and shared decision-making, which would contribute to improved malaria-related and other health-related outcomes in Mozambique and beyond.

Abbreviations

A: Angoche; ANC: Antenatal care; CCP: Center for Communication Programs; FGD: Focus group discussion; HC3: Health Communication Capacity Collaborative; IDI: In-depth interview; IPTp: Intermittent preventive treatment in pregnancy; ITN: Insecticide-treated net; N: Nacaroa; TTSM: *Tchova Tchova* Stop Malaria.

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Authors' contributions

The study was conceived by MEF with the assistance of MEY and the support of JBC for the translation of the study protocol and application to the local context. Working with MEF and ZJH, MEY and JBC implemented the study and checked the data collection standards and quality of translation and transcription. ZJH conceived the analytic strategy and worked closely with MEY and RAA to analyse the data. Thematic coding of the data was divided between the three team members. ZJH double coded at least 15% of the transcribed notes across sections and worked with the other analysts to reach a consensus on the meaning of the data. ZJH refined all the agreed analysis and finalized the reporting. CU, NL, RZ, and HH helped craft the full text, assisting in clarifying and positioning the interpretation of analysis. HH, LP, and JBC helped refine the reading of the findings and supported the literature review. ZJH authored the first draft, which was meaningfully commented on by all authors, with final editorial and inputs to the discussion from CU. All authors read and approved the final manuscript.

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Availability of data and materials
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Ethics approval and consent to participate
The Johns Hopkins University Institutional Review Board (reference 7458) and the local research ethics committee in Mozambique (Ministério da Saúde, Comité Nacional de Bioética para a Saúde) reviewed and approved the study in March 2017.

Consent for publication
Participant consent was sought to report anonymized, aggregated qualitative data.

Competing interests
The authors declare that they have no competing interests.

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Publisher's Note

CHAPTER 3 – DISCUSSIONS AND CONCLUSIONS

3.1 Summary of the findings

The objective of this thesis was to evaluate the malaria prevention and control SBC interventions implemented in Zambezia province between 2011 to 2017. In order to achieve the general objective three studies were conducted with three specific objectives:

- Study 1: to describe the perceptions of community and institutions actors about SBC interventions on malaria prevention and control;
- Study 2: to analyze/assess knowledge, attitude and practices of primary beneficiaries of SBC interventions on malaria prevention and control.
- Study 3: to explore gender dynamics and processes in relation to the uptake of the following malaria-related practices in a SBC intervention.

This thesis was conducted as an evaluation research, starting with an evidence-based intervention (Malaria Social Behaviour Change) which is a proven intervention that is key part of the NMCP malaria prevention strategies.

However, there is a critical information gap about outcomes and impact of SBC interventions in Mozambique, so conducting operational research to refine SBC interventions was necessary. This research will inform, the importance of SBC interventions in terms of NMCP prioritization and also, reinforce the needs of creation a national standard SBC package that can be used by different actors.

The first study shows that community actors have good knowledge about malaria prevention and that institutional actors recognized their role in malaria SBC intervention. Although malaria prevention interventions are currently extended to community and some planning and implementations constrains were identified, mainly related to SBC standard indicators, budget and staff allocation for SBC, coordination between all level, more interconnections are need at different level, with the leadership of the Ministry of Health.

The second study concluded that the beneficiaries of SBC intervention recognized the role of community actors in disseminating malaria preventive messages, however improvement on SBC messages regarding malaria symptoms is needed for quickly health malaria care services, and operational research on socio-economic and cultural factors influencing health behaviours for pregnant women, individuals and family members in using preventive measures for SBC intervention jeopardize and condition the SBC intervention,

The third study confirmed part of the results of study two by providing evidence on a SBC intervention effects by exploring perspectives particular to the intervention setting, ameliorating effects participation on malaria-related household decision making using a gender-sensitive lens.

3.2 Limitations of the study

It should be borne in mind that the study has a few limitations:

The first study is based on self-reported information and lived experiences. Some respondents may have mentioned some ideal perceptions or experiences unrelated to their everyday life (Hawthorne effect). However, the triangulation of data collection techniques, the use of interviewers trained in these techniques, the introduction of probe questions, the diversity of actors interviewed, and the triangulation of information among researchers allowed the potential bias to be minimized. Additionally, the study took place in only 2 out of 22 districts of Zambezia due to limitation in funding. Therefore, it is important to interpret the results with caution and without undue generalization.

The second study, it targeted the head of household as a proxy to KAP held by all members of a household. Ideally, a broader sampling method across the range of adults within Nicoadala and Namacurra communities should have been used. However, this was not possible due to funding constraints. The results may not accurately represent the community's perspectives as a whole. Another limitation of the study is that people in these communities could have obtained information from sources other than the formal SBC interventions, e.g., social media or informal conversations. One cannot attribute all of the success to previous formal SBC interventions. All reported behaviors were self-reported and may have been affected by social desirability bias. Additionally, the questionnaire was not designed to document net quality. Low net quality might have influenced the effectiveness of the intervention, as noted in other studies from Mozambique (Abilio et al. 2020).

The third study does not however examine significant difference in exposed or unexposed groups, this would require a quantitative study design, ideally with a longer time lapse after exposure, which is recommended for future directions of Community Based SB intervention-related research. Analysis is also limited to the defined study populations, and by translated data in 'expanded note' form, that may have masked nuances in meaning and hindered more in-depth analysis.

3.3 Contribution to knowledge and implications

The major contributions of this thesis is that it shows evidence about SBC interventions from the perspective of different key actors, the need to conduct SBC national assessment to understand existing interventions, methodologies, coverages and costs and refine basic SBC package and also the

importance of gender integration in malaria prevention and control strategies, advocacy and policy national widely. These studies support the the Malaria National Strategic Plan - MSP (2017-2022) in country, which recognized the importance of SBC interventions in malaria prevention and control and those interventions should be prioritize in the NMCP agenda.

It is known that SBC intervention are widely used in malaria prevention and control to increase knowledge and create demand to malaria health services (Zalisk et al. 2019).

SBC interventions can be a successful when there is a standardized list of SBC indicators to be used at national level between all the stakeholders and integrate sensitive gender inequalities indicators and data desegregations, funds are prioritize in terms of allocation at all levels of implementation, multisector approach with leadership of MOH, coordination of SBC interventions at all level (plan, implement, monitoring and evaluation), and more operational research on socio-economic and cultural factors influencing health behaviours for pregnant women, individuals and family members in using preventive measures (MISAU, 2017), the more SBC interventions is improving and SBC strategies and approach are refine, more potential implication on malaria morbidity and mortality reduction.

3.4 Recommendations

The results here presented and published indicate that SBC interventions play an important role in malaria prevention when consider as a priority in the agenda of countries NMCP.

We recommended that:

- Creation of a core coordination group (at all levels- national, provincial and district level) and a strong multi sectorial coordination lead by MOH may help to define roles and responsibility and more interconnections between the different actors.
- SBC interventions should be addressed in terms of a priority agenda by the National Malaria Control Program in terms of funds allocation, SBC staffing allocation at all levels to ensure strong interventions, partner coordination, as well as intervention monitoring and evaluation.
- Definition of SBC malaria standard indicators, gender inequalities indicators and data desegregations, that will be used by the different actors.
- Conduct SBC national operational research and assessment to understand existing approaches, methodologies, coverages and cost and refine SBC package.
- Developed a standard SBC package that will include evidence based SBC intervention approach, materials, tools, training curricula, gender inequalities matters), that will be used by the different actors.

- Integrate a gender inequality approach into the NMCP advocacy and strategic plans.

3.5 Further research directions

Assess, from a programmatic perspective the level of SBC interventions implementation between government and its implement partners.

- What is planned?
- What is achieved?
- Which is the ideal package to be implement in country?

3.6 Autobiographical reflection

I decided to enrol into this magnificent adventure (PhD in International Health), when I was part of Mozambican Medical Council Board, as the National Secretariat of the Deontology and Ethic Medical Board. During my academic lectures, I learnt how to design a research protocol, collect field data and write manuscripts for consequently articles publications. This was a wonderful experience although I encountered some challenges. I had the opportunity to have the academic support of different good supervisors. The easy step was to build the thesis plan as I already knew the type of studies would bring evidence based to contribute in the reduction of the main problem of public health in my country (Mozambique). So first, I reach consensus with my initial supervisor, that I would write my thesis in the format of manuscripts, then article publication, although it took time for all the process, this allowed me to have an external and international evaluation from the perspective of different reviewers. It was an add value for my thesis report.

Additional, I decided to do two type of methodology studies (qualitative and quantitative), allowing me to apply what I learnt during my academic lectures (Master and PhD).

One of the best and most value learning was working with a varieties of expertise supervisors that had a lot of experience in health programs evaluation, malaria SBC interventions and this facilitated all my research process. During this path, I lost my best friend and academic co-supervisor prematurity and although my research project supervisors had changed and rotate a lot, I could manage and achieve this final step.

I make sure and prefer to be involved in all the research project steps and process, since the design of a research protocol and respectively data collection, but also correcting the comments and technical inputs from the National Bioethics Committees, which also took time.

I was working with Johns Hopkins University, Center for Communication Program, the lead of SBC theories and research in the world and I had the opportunity to improve my skills in SBC theories and research, this allows me to provide support and guidance to my field data collectors training, field collections, data analysis and manuscript writing.

I have learned that, although there are many challenges during a research, it's important to never give up.

This doctoral thesis has also contributed to my professional improvement and guidance during my practices and work and I actively participated in the design of the National Malaria Communication Strategy of MOH (2022-2027).

3.7 Final words

There is a strong evidence base showing that SBC interventions can help improve malaria prevention and treatment trough malaria positive behaviours and SBC interventions must to be prioritise in terms of NMCP countries agenda for the success of malaria prevention and control. Plus, gender inequalities sensitive matters, also must be integrated and considered in a high level leadership, ensuring that the community harmful practices and negative health behaviours will be avoid. The COVID19 pandemic has bring new challenges in terms of SBC interventions redefinition strategies, taking into account the importance of maintain the malaria essential services and avoid disruptions of services which could help control malaria burden in country. However, more work needs to be done to ensure that best practices are documented in a SBC package and used consistently between all the actors, a guideline for a pandemic situation, must be developed in country and be used between all the relevant stakeholders, when needed.

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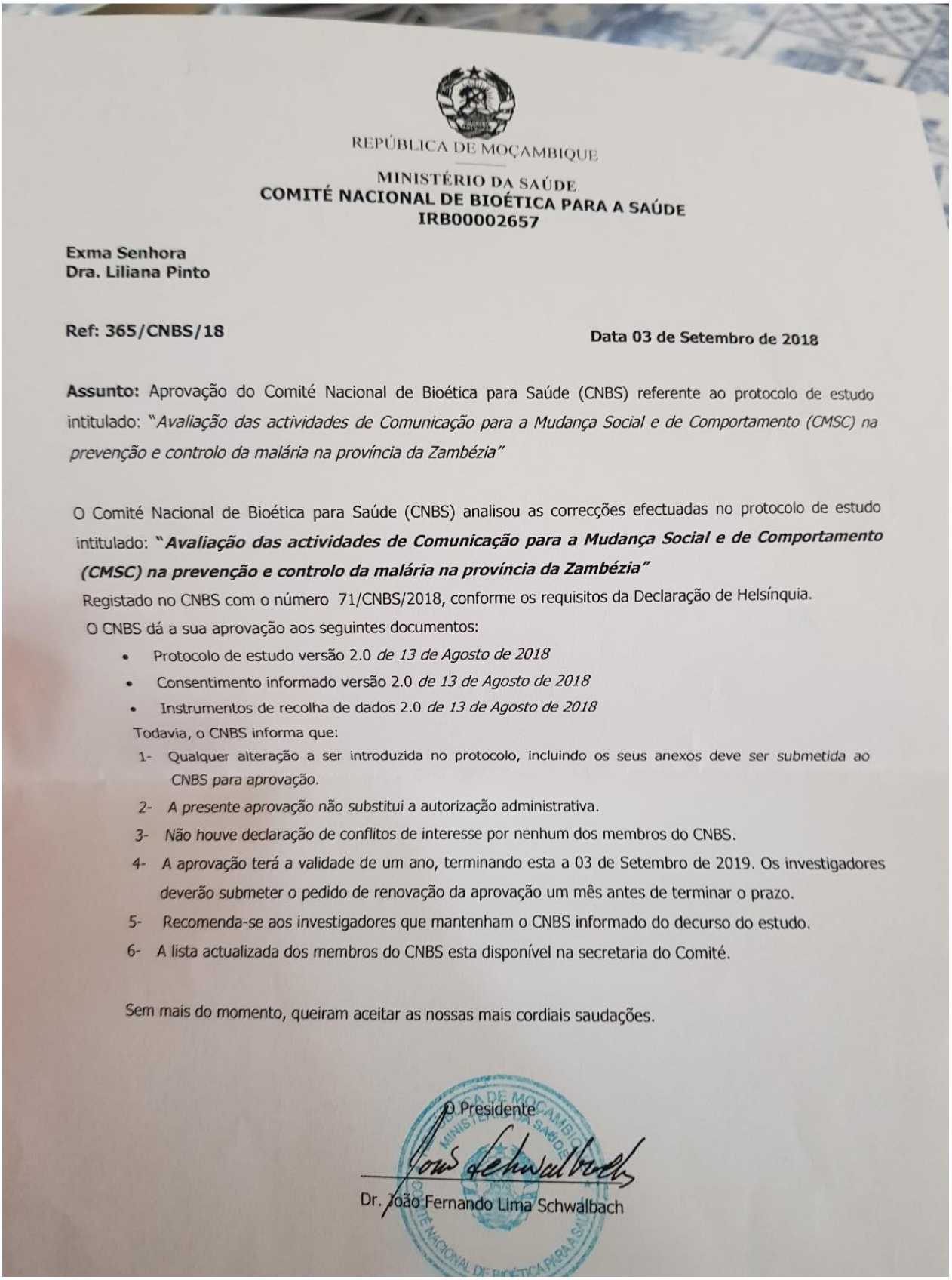
APPENDIX

Appendix 1: Authorization from the National Committee on Bioethics in Health



REPÚBLICA DE MOÇAMBIQUE

MINISTÉRIO DA SAÚDE
COMITÉ NACIONAL DE BIOÉTICA PARA A SAÚDE
IRB00002657

Exma Senhora
Dra. Liliana Pinto

Ref: 365/CNBS/18 **Data 03 de Setembro de 2018**

Assunto: Aprovação do Comité Nacional de Bioética para Saúde (CNBS) referente ao protocolo de estudo intitulado: "*Avaliação das actividades de Comunicação para a Mudança Social e de Comportamento (CMSC) na prevenção e controlo da malária na província da Zambézia*"

O Comité Nacional de Bioética para Saúde (CNBS) analisou as correcções efectuadas no protocolo de estudo intitulado: ***"Avaliação das actividades de Comunicação para a Mudança Social e de Comportamento (CMSC) na prevenção e controlo da malária na província da Zambézia"***

Registado no CNBS com o número 71/CNBS/2018, conforme os requisitos da Declaração de Helsínquia.

O CNBS dá a sua aprovação aos seguintes documentos:

- Protocolo de estudo versão 2.0 *de 13 de Agosto de 2018*
- Consentimento informado versão 2.0 *de 13 de Agosto de 2018*
- Instrumentos de recolha de dados 2.0 *de 13 de Agosto de 2018*

Todavia, o CNBS informa que:

1- Qualquer alteração a ser introduzida no protocolo, incluindo os seus anexos deve ser submetida ao CNBS para aprovação.
2- A presente aprovação não substitui a autorização administrativa.
3- Não houve declaração de conflitos de interesse por nenhum dos membros do CNBS.
4- A aprovação terá a validade de um ano, terminando esta a 03 de Setembro de 2019. Os investigadores deverão submeter o pedido de renovação da aprovação um mês antes de terminar o prazo.
5- Recomenda-se aos investigadores que mantenham o CNBS informado do decurso do estudo.
6- A lista actualizada dos membros do CNBS esta disponível na secretaria do Comité.

Sem mais do momento, queiram aceitar as nossas mais cordiais saudações.

O Presidente

Dr. João Fernando Lima Schwalbach

Appendix 2: Authorization from the Instituto de Higiene e Medicina Tropical

Scientific Committee

Conselho Científico

Exma. Senhora
Doutora Marta Temido
Instituto de Higiene e Medicina Tropical
Orientadora da aluna

121/CC /2018

Assunto: **3.º Ciclo de Estudos em Saúde Internacional – Comissão Tutorial e Plano de Tese – *Liliana de Sousa Pinto***

Informamos que o Conselho Científico (CC) do Instituto de Higiene e Medicina Tropical reunido no dia 11 de julho de 2018, aprovou o Plano de Tese, a Orientação e a Composição da Comissão Tutorial, da Aluna de Doutoramento *Liliana de Sousa Pinto,* que passará a ter a seguinte constituição:

- Doutora ***Marta Temido***. Orientadora. Especialista do Instituto de Higiene e Medicina Tropical da Universidade Nova de Lisboa;
- Doutora ***Maria do Rosário Oliveira Martins.*** Coorientadora. Professora Catedrática do Instituto de Higiene e Medicina Tropical da Universidade Nova de Lisboa;
- Doutora ***Rose Zulliguer***. Center for Disease Control and Prevention, Moçambique;
- Doutora ***Zulmira Hartz***. Professora Catedrática Convidada do Instituto de Higiene e Medicina Tropical da Universidade Nova de Lisboa.

A aluna deverá agora, proceder ao registo da tese de doutoramento no Conselho Científico, em cumprimento do estipulado pelo Artigo 10.º do Regulamento n.º 474/2012 de 19 de novembro – Regulamento Geral do 3.º Ciclo de Estudos Superiores Conducentes à Obtenção do Grau de Doutor pelo IHMT/UNL.

Para os devidos efeitos, junto se devolve à Divisão Académica a documentação que sobre o assunto, foi submetida a este Conselho Científico.

Com os melhores cumprimentos,

Lisboa, IHMT, 13 de julho de 2018

A PRESIDENTE DO CONSELHO CIENTÍFICO

Lenea Campino, MD, Professora Catedrática

Appendix 3: Data collections tools – study I

1 – Interviews guide – Institutions actors

FICHA DA ENTREVISTA

Nome do entrevistado: _____

Posição/Organização: _____

Data da entrevista: _____

Nome do entrevistador: _____

[escrever a hora do inicio da EI]

PERGUNTAS

1. Pode descrever brevemente o seu papel e como é feita a coordenação na área de comunicação?
2. Qual o papel da área de comunicação no controlo da malária? Se fosse para graduar a importância da área de comunicação no controlo da malária, numa escala de 1 a 5, em que 1 é menos importante e 5 é muito importante/crucial, qual seria a pontuação que daria a esta área?

3. Como é que os actores comunitários participam nas intervenções de comunicação para a mudança social e de comportamento (CMSC) para as campanhas de redes/PIDOM/etc?

4. Como é que os actores institucionais do MISAU participam nas intervenções de comunicação para a mudança social e de comportamento (CMSC) para as campanhas de redes/Pulverização Intra-Domiciliários-PIDOM/etc?

5. Na componente que é responsável dentro do PNCM, até que ponto a componente de comunicação para mudança social de comportamento (CMSC) foi implementada conforme o planeado?

APROFUNDAR:

- O que funcionou bem?
  - Porquê?
- O que não funcionou bem?
  - Porquê?

6. **Níveis de avaliação das actividades de CMSC:**

APROFUNDAR:

- **Pertinência:** As actividades de CMSC que foram desenhadas estavam alinhada com a estratégia nacional de controle da malaria (por ex: campanhas de redes, PIDOM, etc)? Se sim, em que medida? Se não, explique

- **Apropriação:** Qual foi a capacidade de liderança do governo, das organizações não governamentais e sociedade civil no geral, na participação activa e tomada de decisão na planificação e implementação das actividades de CMSC?
- **Harmonização:** Quais foram os mecanismos de coordenação usados para a planificação e implementação das actividades de CMSC entre o governo (PNCM, DPS, SDSMAS) e as organizações (por ex: Visão Mundial e seus sub-recipientes)?
- **Coerência:** As actividades de CMSC programadas/planificadas para alcançar os objetivos da intervenção (prevenção da malaria) são adequadas?
- **Eficácia:** As actividades de CMSC estão permitindo o alcance dos resultados previstos? Que factores internos ou externos têm influenciado para o alcance dos resultados?
- **Eficiência:** O orçamento previsto para as actividades de CMSC é adequado? Em que medida? Os fundos são disponibilizados em tempos previstos? Foram feitas variações em relação a formulação inicial do projeto? O perfil dos gestores das actividades de CMSC é adequado a intervenção e seus objetivos? Quais os mecanismos de monitoria do projecto se têm utilizado? Os recursos matérias estão directamente relacionados com a realização dos resultados? A implementação do projecto tem sido cumprida a tempo previsto em função do planificado? Que factores externos e /ou internos tem influenciado nos eventuais atrasos?
- **Sustentabilidade:** As organizações, o governo (MISAU, DPS) e população benificiária estão consciente das suas responsabilidades? Os benefícios da intervenção serão mantidos uma vez retiradas a ajuda externa? Os recursos necessários para a manutenção das actividades como serão disponibilizados?
- **Impacto:** Que efeitos previstos a medio ou longo prazo deste projecto se tem alcançado ou é previsível que se consiga alcançar? Tem havido mudanças de atitudes dos benificiários ao longo do período de execução do projecto?

7. **Será que as actividades de CMSC em relação a prevenção da malaria tem algum resultado em termos de conhecimento por parte da comunidade?**
    a. Acha que a comunidade sabe o que transmite a malária?
    b. Acha que a comunidade sabe os principais sinais e sintomas da malária?
    c. Acha que a comunidade sabe sobre a importância de procura atempada de cuidados de saúde (Agente Polivalente Elementar - APEs ou unidade sanitária)
    d. A comunidade tem usado as ferramentas de prevenção disponível? Como se tem comportado em termos de uso de REMILDs ao longo dos anos em que a ferramenta está disponível? Como tem sido a recusa da PIDOM ao longo dos anos? Tem aumentado? Tem diminuído?
    e. Como está o uso de Tratamento Intermitente Preventivo - TIP pelas mulheres grávidas? Olhando para um cenário em que há disponibilidade de Fansidar (sem ruptura de stock), teriamos mais mulheres grávidas a fazerem pelo menos 2 doses de TIP? Quais os desafios na área de comunicação na componente preventiva TIP?

APROFUNDAR:

- Comunidade já ouviu falar de malaria?
- Comunidade sabe aonde buscar os serviços ou apresenta atitudes favoráveis em relação aos produtos disponíveis de malaria (ex: redes mosquiteiras, anti maláricos, etc)?
- Na sua opinião, faltam ferramentas ou materiais de CMSC adequados as comunidades?

        - O que deve ser melhorado?

8. **Será que as actividades de CMSC em relação a prevenção da malaria tem algum resultado em termos de atitude, pratica, costumes e comportamento por parte da comunidade?**

APROFUNDAR:

- Como?
- As campanhas massivas de distribuição de redes, pulverização domiciliarias, tratamento atempado, tratamento para mulher gravida são influenciadas pelas actividades de CMSC? Como? Algo deve ser melhorado?

9. **O sistema de monitoria usado, capta os dados ou informações sobre as actividades de CMSC (por exemplo: campanhas de distribuição de redes, PIDOM, ect)?**

APROFUNDAR:

- O que funcionou bem?
    - Porquê?
- O que não funcionou bem?
    - Porquê?

10. **Falando sobre os treinos dos voluntários/activistas/facilitadores:**

APROFUNDAR:

- Conhece o pacote de treino dos voluntários e professores?
- O que pensa sobre a selecção que foi feita dos activistas/facilitadores/voluntários comunitários e professores? Acha que os critérios de selecção usados foram relevantes? Estão preparados para desenvolver as actividades de CMSC?
- Que outro tipo de suporte adicional acha que poderia ser beneficente para os activistas/facilitadores/voluntários comunitários durante a realização das actividades de comunicação?
- Haveria algum outro grupo alvo comunitário que ainda não está sendo abordado na CMSC na luta contra a malária?
- Na parte do treino, o que pode ser melhorado?
    - O quê por exemplo?
- Na parte do apoio aos voluntários depois do treino, o que pode ser melhorado?
    - O quê por exemplo?
        - Por parte de quem?
        - Com que frequência?

11. Na sua opinião, como podemos melhorar o papel dos actores institucionais nas actividades de CMSC?
12. Na sua opinião, como podemos melhorar o papel dos actores comunitários nas actividades de CMSC?

13. O que é que você acha que pode ser melhorado desde a coordenação, planificação, implementação, monitoria, avaliação das actividades de CMSC entre os diferentes actores (comunitários e institucionais)?

14. Que outros factores podem afectar o sucesso das actividades de CMSC e o papel dos actores comunitários e institucionais?

15. Quais as lições aprendidas e recomendações em relação a implementação de actividades relacionados a CMSC para prevenção da malaria?

16. Quais as recomendações chaves sobre como os actores comunitários e institucionais pordem participar activamente nas actividades de CMSC?

17. Existe alguma outra coisa que gostariam de acrescentar ou compartilhar comigo? Têm alguma dúvida?

[ESCREVER A HORA DE FIM DA ENTREVISTA]

2- Focal Discussions Groups guides – Community actors

Community Structure Focal Group Discussion Guide

Província:	Distrito:
Localidade:	Comité de Saúde de:
Data da Formação/Revitalização:	Periodicidade de encontros
US de referência do comité:	Nº de Membros Presentes:
Data do Encontro:	Membros do sexo masculino:
Hora de Início: Hora de fim:	Membros do sexo feminino:
Equipa:	

PERGUNTAS	SUMÁRIO DAS RESPOSTAS
Aspectos Organizacionais e Funcionais do Comité	
Qual é o papel do comité?	
O comité tem espaço físico? Aonde se reúnem?	
O Comité faz encontros regulares? De quanto em quanto tempo?	
As reuniões do comité têm acta ou faz registo dos assuntos discutidos? Se SIM, quem faz a acta ou o registo? Solicitar um exemplar de acta/registo	
O comité se reúne com a unidade sanitária? Se SIM, com que periodicidade? Ou acontece sempre que necessário?	

No último mês o comité se reuniu com a unidade sanitária? Se SIM, QUAL É O Assunto discutido? Se não, porquê?	
Existe um plano de palestras mensais com temas definidos?	
Tem material de IEC[1] para a CMSC sobre malária? Se SIM, que material usa para a actividade de CMSC para malaria? Explore sobre Panfletos, álbum seriado, cartões, etc	
Como efectua o registo dos participantes destas actividades?	
Qual é a perceção da comunidade sobre a prevenção da malária? Quais são os aspetos bons e maus relacionados a prevenção da malária? Pode comentar sobre o uso de Rede e pulverização?	
As actividades desempenhadas pelo comité de saúde estão a influenciar na mudança de comportamentos da comunidade? Se sim, como? Se não, porquê?	
Quais as dificuldades que o comité de saúde enfrenta?	
Percepção e Conhecimentos sobre a Malária	
Pode dizer o que sabe sobre a malária? Explorar os seguintes aspectos: Transmissão, Prevenção, Cura/Tratamento, sintomas, causas, consequências, Efeitos,	
Percepção do Risco de Contrair a Malária na Gravidez	
• Acha que há grupos mais vulneráveis do que outros a apanhar a malária? Porquê? • A malária nas mulheres grávidas, actua da mesma maneira como em outras pessoas? • Como se sente uma mulher grávida quando tem malária? O que pode acontecer com ela? E com o bebé? • Existe algum medicamento que se usa para prevenir a malária na gravidez? Qual? Quantas vezes se deve tomar? Quando inicia? • As mulheres grávidas aceitam tomar os comprimidos? Se não porquê?	

[1] IEC – Material de Informação e Educação

Conhecimento sobre os métodos de prevenção da malária	
• Quais são os diferentes métodos de prevenção da malária que conhece? Explorar Saneamento do Meio, REMILDs, PIDOM, Tratamento, TIP • Dos métodos que mencionou quais são os que a comunidade aceita mais?	
Recomendações gerais	
• Que outros factores podem afectar o sucesso das actividades de CMSC e o vosso papel?	
• Quais as lições aprendidas e recomendações em relação a implementação de actividades relacionados a CMSC para prevenção da malaria?	
• Quais as recomendações chaves sobre como as estruturas comunitárias (comité de saúde) podem participar activamente nas actividades de CMSC?	

3- Teachers Schools Focal Group Discussion Guide

Província:	Distrito:
Localidade:	EPC de:
	Nº de Professores Formados Existentes Actualmente:
ZIP de referência: US mais próxima:	Nº de Professores Presentes: M___ ; F____: Total___ Nº de Professores formados na matéria de prevenção da Malaria Presentes:
Data do Encontro:	Professores do sexo masculino formados:
Hora de Início: Hora de fim:	Professores do sexo feminino formados:
Equipa:	

PERGUNTAS	SUMÁRIO DAS RESPOSTAS
Aspectos Organizacionais e Funcionais dos Professores	
Os professores se reúnem com a unidade sanitária? Se SIM, Com que periodicidade? Ou acontece quando necessário? Se não, porquê?	
No último mês os professores se reuniram com a unidade sanitária? Se NÃO, Porque? se Sim, qual foi assunto discutido?	

Alguém da Saúde (enfermeiro, técnico, médico, etc) já visitou a escola nos últimos 12 meses? Se SIM, quando foi a última vez? Nessa visita falou de alguns aspectos sobre saúde? Se SIM, que tópicos? Explore, vacinação, malária, tuberculose, HIV, nutrição, saneamento do meio, etc.	
Existem actividades de Educação para Saúde nesta escola? Se SIM,quais são os temas abordados? Que actividades de comunicação sobre a malária existem? Explore: periodicidade da abordagem, existência de um plano de actividades, abordagem apenas com alunos, com encarregados de educação, etc?	
Tem material de IEC para a CMSC sobre malária? Se SIM, que material usa para a actividade de CMSC? Explore sobre Panfletos, álbum seriado, cartões, etc.	
Como se efectua o registo dos participantes destas actividades?	
Qual é a perceção da comunidade sobre prevenção da Malaria? Quais são as fontes de informação e educação para prevenção da malaria? Explorar como é feito o uso da REMILD, aceitabilidade da PIDOM, do TIP. Como são acatadas as mensagens sobre o saneamento do meio?	
As actividades desempenhadas pelos professores estão a influenciar na mudança de comportamentos? Como?	
Quais as dificuldades que os professores enfrentam nesta actividade?	
Percepção e Conhecimentos sobre a Malária	
Que percepção e conhecimentos tem sobre a malária? Pode dizer o que sabe sobre a malária? Explorar os seguintes aspectos: Transmissão, Prevenção, Cura/Tratamento, sintomas, causas, consequências,	
Percepção do Risco de Contrair a Malária na Gravidez e na Criança em Idade Escolar	
• Acha que há grupos mais vulneráveis do que outros a apanhar a malária? Se sim, porquê? • A malária nas mulheres grávidas, actua da mesma maneira como em outras pessoas? E nas Crianças? Porquê?	

• Como se sente uma mulher grávida quando tem malária? O que pode acontecer com ela? E com o bebé? • Existem faltas escolares dos alunos por causa de malária? Com que frequência se regista ausências dos alunos por malária? Em cada 10 alunos ausentes, em médias quantos faltaram por causa da malária? • Existe algum medicamento que se usa para prevenir a malária na gravidez? Qual? Quantas vezes se deve tomar? Quando inicia? • As mulheres grávidas aceitam tomar os comprimidos? Se não porquê?	
Conhecimento sobre os métodos de prevenção da malária	
• Quais são os diferentes métodos de prevenção da malária que conhece? Explorar Saneamento do Meio, REMILDs, PIDOM, Tratamento, TIP • Dos métodos que mencionou quais são os que a comunidade aceita mais?	
Recomendações gerais	
• Que factores podem afectar o sucesso das actividades de CMSC e o vosso papel?	
• Quais as lições aprendidas e recomendações em relação a implementação de actividades relacionados a CMSC para prevenção da malaria?	
• Quais as recomendações chaves sobre como os professores podem participar activamente nas actividades de CMSC?	

Observações e outras considerações:

Appendix 4: Data collections tools – study II

Questionnaire for Head of Households Members

CRITÉRIO PARA SELECCIONAR <u>A PRINCIPAL PESSOA A ENTREVISTAR</u>:

A. **Pessoa que vela pela saúde do agregado (homem ou mulher) ou**

B. **Caso esta pessoa não esteja disponível, então escolha um outro**

membro do agregado familiar que tenha responsabilidades no agregado.

INTRODUÇÃO:

Bom dia (boa tarde), o meu nome é ..... e estou a fazer um trabalho sobre as actividades de comunicação para malária. Neste momento estamos a conduzir um levantamento na área de saúde, em parceria com a Direcção Provincial de Saúde. O levantamento está a ser levado a cabo na província da Zambezia, em dois distritos previamente selecionados pela DPS/Zambézia mediante critérios de seleção pré-definidos. Este levantamento ajudará o Ministério da Saúde e seus parceiros a planear as actividades que vem desenvolvendo na área de comunicação e que pretende melhorar a situação de saúde da comunidade.

A sua participação é voluntária, pode sempre recusar-se a participar. Se aceitar participar no levantamento, pode optar por não responder a algumas questões e pode terminar a entrevista a qualquer momento. Esta entrevista terá uma duração aproximada de 45 minutos ou menos. Todas as informações aqui recolhidas são privadas e tratadas de forma confidencial e serão usadas apenas para efeitos deste levantamento e análise estatística. Agora gostaria de lhe colocar algumas perguntas. Podemos prosseguir?

A pessoa seleccionada **ACEITA** ser entrevistado(a) –> **Prossiga com a entrevista**

A pessoa seleccionada **NÃO ACEITA** ser entrevistado(a) –> **Termine a entrevista**

Estudo CAP - 2018

Número de Questionário ☐☐☐☐

DETALHES DA ENTREVISTA

Província	**CÓDIGO** (1) Zambézia
Distrito 1 Distrito 2	(1) Nicoadala (2) Namacurra
Posto Administrativo |_____|	
Nível de urbanização (Área)	(1) Urbano (2) Rural
Zona geográfica	(1) Interior (2) Costeiro
Nome do chefe do agregado |_ familiar:	
Nome do respondente |_ _____| seleccionado:	
Identificação do agregado familiar	(1) Pai (2) Mãe (3) Irmão mais velho (4) Sogra (o) (5) Avo (6) Tia (o) (7) Primo (a) (8) Outro- especifique:
Entrevistador: |_____| |__|__|	**Ver lista de códigos**
Supervisor de Campo: |_____| |__|__/	**Ver lista de códigos**
Data da Entrevista**:** Dia |__|__| Mês |__|__| 2018 Hora de Início |__|__|H	

I SECÇÂO – PRINCIPAL RESPONDENTE

	Para começar, gostaria de agora obter alguma informação sobre si e do seu agregado familiar.[1] Diga-me por favor os nomes de todas as pessoas, que pertencem ao seu agregado familiar. Caso tenha recebido visitantes, que dormiram na sua casa na noite anterior, por favor, incluir também os nomes destas pessoas.

Nº	I.1 Quantas pessoas vivem neste agregado	I.2. Nos últimos 6 meses quantas pessoas estavam presentes neste agregado familiar?	I.3 Sexo	I.4 Idade do entrevistado (quantos anos a pessoas completou no seu último aniversário)	I.5 Qual foi o ultimo nível de escola que frequentou?	1.6 O que o agregado familiar possui em casa?

			(1) M (2) F	Peca a (o) inquirida(o) algum documento para confirmar a data de nascimento	01 --Nenhum 02 -- Alfabetização 03 – Primário EP1 04 – Primário EP2 05 – Técnico elementar 06 – Secundário ESG1 07 – Secundário ESG2 08 – Técnico básico 09 – Técnico Medio 10 - Superior	(1) Eletricidade (2) Radio (3) Televisor (4) Tefefone fixo (5) Computador (6) Geleira ou congelador (7) Carro ou Camião (8) Barco ou motor (9) Mota (10)Outros especifique_____

[1] Agregado familiar = uma pessoa ou de um grupo de pessoas, com ou sem grau de parentesco, que vivem juntos e têm a mesma fonte de alimentação (comer da mesma panela). Não incluir os membros do agregado familiar que estão fora há mais de 6 meses.

1.CONHECIMENTOS SOBRE MALARIA		
1.1	Já ouviu falar sobre a malaria?	(1) Sim (2) Não – **termine a entrevista**
1.2	Se sim, em que ano ouviu falar sobre malaria? **Marque as respostas dadas**	(3) (1) 2011 (4) 2012 (5) 2013 (6) 2014 (7) 2015 (8) 2016 (9) 2017 (10) Meados de 2018 (últimos 6 meses) (11) Não___ SALTE PARA 1.3
1.3	Mencione, por favor, todas as formas de apanhar malária, que conhece **Marque as respostas dadas**	(1) Picada de mosquitos (2) Pulgas/piolhos/percevejos (3) Ingestão de alimentos contaminados (4) Beber água suja (5) Lixo/sujidade nas proximidades da casa (6) Higiene pessoal deficiente (7) Feitiço (8) Não sabe dizer
1.4	Se sim, onde ouviu falar? **Marque as respostas dadas**	(1) Radio (2) Televisão (3) Telefone (4) Agente Polivalente Elementar (APE) (5) Unidade Sanitária (6) Activista/voluntario (7) Evento na comunidade (8) sessões de diálogos comunitários (9) Familiares/amigos (10) Associações de base comunitárias (11) Comité de Saúde Estrutura comunitária (12) Professores/escola (13) Igreja (14) Mesquita (15) Outro- Qual?_____ _____

1.5	Que mensagens sobre malaria você ouviu ou viu? **Marque as respostas dadas**	(1) A malaria é uma doença (2) A malaria é perigosa (3) A malaria pode matar (4) Mosquito transmite a malaria (5) E importante dormir sob uma rede mosquiteira (6) Todas as pessoas devem dormir dentro da rede mosquiteira (7) Todas as crianças devem dormir dentro da rede mosquiteira (8) Procure tratamento de febre (9) Procure tratamento de febre rapidamente (24 horas) (10) Actividades de saneamento do meio (11) E importantes mulheres gravidas receberem cuidados pré-natais (12) Tomas SP/Fansidar (13) Não sabe dizer (14) Outros – especifique:
1.6	Conhece algum lema/organização sobre malaria? Marque as respostas dadas	(1) Malaria Fora (2) Tchova Tchova Malaria (3) Programa Inter-religioso contra malaria (PIRCOM) (4) Vamos evitar a malaria (5) Vive livre da malaria (6) Outro. Especifique_____
1.7	Mencione por favor todos os sinais ou sintomas da malária, que conhece (i.e. como se manifesta esta doença)? **Marque todas as respostas**	(7) Corpo quente/febre (8) Frio/tremores (9) Dores no corpo (10) Dores de cabeça (11) Dores nas articulações (12) Diarreia (13) Vómitos (14) Falta de apetite (15) Fraqueza/falta de sangue (16) Tosse (17) Congestão nasal (18) Não sabe dizer (19) Outros – especifique: _____
1.8	Sabe quais são os grupos de população que apanham mais facilmente a malária? **Marque todas as respostas**	(1) Crianças (2) Mulheres (3) Mulheres grávidas (4) Adultos (5) Todos (6) Ninguém (7) Outros (8) Não sabe dizer

1.9	Mencione, por favor, todas as maneiras/meios, que conhece, para evitar a malária? **Marque todas as respostas**	**(1)** Nenhum meio/não sabe dizer (2) Queimar folhas/eucalipto (3) Serpentina/Baygon (4) Rede mosquiteira (5) Repelente (6) Queimar o lixo (7) Tratamentos tradicionais (8) Melhorar a higiene de casa (9) Pulverizar / fumigar a casa (10) Melhorar a higiene pessoal (11) Outro – especifique: _____
1.10	Uma mulher grávida pode se prevenir da malária?	(1) Sim – **SALTE PARA 1.11** (2) Não (3) Não sabe- **SALTE PARA 2.1**
1.11	**SE SIM**, de que forma? **Marque todas as respostas**	(1) Dorme dentro duma rede mosquiteira (2) Dorme dentro de uma REMILD (3) Pulverização da casa com insecticida (4) Manter portas e janelas fechadas (5) Usar repletes de insectos (6) Cortar capim (7) Eliminar aguas paradas a volta da casa (8) Queimar folhas de eucalipto (9) Tomar medicamentos na consulta pré-natal no hospital (10) Outra. Especifique_____ (11) Não sabe dizer
1.12	A malaria tem cura?	(1) Sim (2) Não (3) Não sabe

1.13	Participou de actividades ou reuniões organizadas sobre malaria nesta comunidade no ultimo ano	(1) Sim (2) Não
1.14	Tera participado dessas reuniões nos outros anos?	(1) 2012 (2) 2013 (3) 2014 (4) 2015 (5) 2016 (6) 2017

2. PRÁTICAS DE PREVENÇÃO DE MALÁRIA			
2.1.	O que é que costuma fazer pessoalmente para evitar a malária **Marque as respostas dadas**	(1) Nada (2) Queimar folhas/eucalipto (3) Serpentina/Baygon (4) Usa Rede mosquiteira (5) Usa repelente (6) Queimar o lixo (7) Tratamentos tradicionais (8) Melhorar a higiene da casa (9) Melhorar a higiene pessoal (10) Pulverizar / fumigar a casa (11) Não sabe dizer – **SALTE PARA 2.3** (12) Outro – especifique:	
2.2.	Porque é que opta por esta (s) medida (s)? **Marque as respostas dadas**	(1) É mais simples/fácil/acessível (2) É mais barato/não tem Custos (3) Funciona melhor/mais eficaz (4) Outro – especifique:	
	Redes mosquiteiras		
2.3.	A sua casa tem alguma rede mosquiteira que possa ser usada ao dormir?	(1) Sim - **SALTE PARA 2.5** (2) Não	
2.4.	**SE NÃO**, porque é que não tem redes mosquiteiras?	(1) É demasiado caro (2) Não sabe onde obter (3) Não acha necessário (4) Outro – especifique _____	
2.5.	**SE SIM,** quantas redes mosquiteiras tem na sua casa?	_____redes	

2.6	Alguém dormiu debaixo da rede mosquiteira na noite passada?	(1) Sim____ (2) Se não_____ salte para 2.8				
2.7	**SE SIM,** quantas pessoas? **INDICAR O Nº de pessoas**	(1) REMILD 1: No de pessoas_____	(2) REMILD 2: No de pessoas_____	(3) REMILD 3: No de pessoas_____	(4) REMILD 4: No de pessoas_____	(5) REMILD 5: No de pessoas_____
2.8	Você dormiu debaixo da rede mosquiteira na noite passada?	(3) Sim (1) Não_____ **SALTE PARA 3.1**				
2.9.	**SE NÃO,** porque não dormiu debaixo da rede?	(1) A rede já está estragada/tem furos (2) A rede cria calor (3) Não há mosquitos (4) Provoca alergias (5) Dormi no quintal/ar livre (6) Outro - especifique:	(1) A rede já está estragada/tem furos (2) A rede cria calor (3) Outro - especifique:	(1) A rede já está estragada/tem furos (2) A rede cria calor (3) Outro - especifique:	(1) A rede já está estragada/tem furos (2) A rede cria calor (3) Outro - especifique:	(1) A rede já está estragada/tem furos (2) A rede cria calor (3) Outro - especifique:

2.10	**Essa rede mosquiteira foi obtida através de uma campanha de distribuição nacional ou consultada pré-natal?**	(1) Sim, campanha nacional de distribuição (2) Sim, consulta pré-natal (3) Não (4) Outros. Especifique____________	(1) Sim, campanha nacional de distribuição (2) Sim, consulta pré-natal (3) Não (4) Outros. Especifique ______________	(1) Sim, campanha nacional de distribuição (2) Sim, consulta pré-natal (3) Não (4) Outros. Especifique _____________	(1) Sim, campanha nacional de distribuição (2) Sim, consulta pré-natal (3) Não (4) Outros. Especifique _______________	(1) Sim, campanha nacional de distribuição (2) Sim, consulta pré-natal (3) Não (4) Outros. Especifique________

3. TRATAMENTO DE MALARIA		
3.1.	Alguém no seu agregado familiar já apanhou malária nos últimos 6 meses?	(1) Sm (2) Não - **SALTE PARA 3.3** (3) Não sabe/Não se lembra - **SALTE PARA 4.1**
3.2	Se sim, quem foi? **Marque as respostas dadas**	(1) Mãe (2) Pai (3) Tio (a) (4) Irmã(o) mais velho (5) Avo (6) Sogro(a) (7) Filho (a) (8) Outro: especifique_____
3.3	Teve algum membro com febre nas ultimas duas semanas?	(1) Sim (2) Não - **SALTE PARA 4.1** (3) Não sabe
3.4	Procurou alguém para aconselhamento ou tratamento quando teve febre?	(9) Sim - **SALTE PARA 3.6** (10) Não (11) Não sabe
3.5	**SE NÃO**, porque não procurou? **Marque as respostas dadas**	(1) Os serviços de aconselhamento/tratamento ficam muito longe/longe demais **SALTE PARA 3.8** (2) Aconselhamento/tratamento teria saído muito caro **SALTE PARA 4.1** (3) Não acha útil o aconselhamento ou tratamento /serviços não prestam **SALTE PARA 4.1** (4) O marido não autorizou **SALTE PARA 4.1** (5) Outro – especifique:___ (6) _____

3.6.	**SE SIM,** onde procurou algum aconselhamento ou tratamento? **Marque as respostas dadas**	**Sector público:** (1) Hospital (2) Unidade Sanitária (3) Centro de saúde (4) Posto de saúde (5) Brigada móvel (6) Agente Polivalente Elementar (APE) (7) Farmácia pública **Sector privado** (8) Clínica privada (9) Farmácia privada **Outra fonte** (10) Curandeiro (11) Mercado (12) Outro – especifique:
3.7	Porque optou por este prestador de serviço? **Marque as respostas dadas**	(1) É mais eficaz /competente/melhor qualidade (2) É mais barato (3) É mais próximo da residência (4) Outro - especifique:
3.8	Quem decidiu sobre o lugar para onde se dirigiu à procura de aconselhamento/tratamento? **Marque as respostas dadas**	(1) Chefe de agregado familiar (2) Esposa/o do chefe (3) Sogra (4) A pessoa que esteve com febre (5) Outro – especifique:

3.9	**Fez o teste da malaria?**	(1) Sim (2) Não- **SALTE PARA 4.1**	
3.10	**Soube o resultado do teste?**	(1) Sim (2) Não - **SALTE PARA 4.1** (3) Não sabe - **SALTE PARA 4.1**	
3.11	**Qua foi o resultado**	(1) Positivo (2) Negativo___SALTE PARA 4.1 (3) Não sei	

	4. Atitudes dos beneficiários em relação a prevenção da malaria	
4.1	A informação que recebi dos activistas/voluntários foi suficiente em relação a prevenção da malária **Marque as respostas dadas**	(1)Discordo fortemente (2) Discordo (3) Neutro (4) Concordo (5)Concordo fortemente
4.2	A maior parte dos meus vizinhos, minha comunidade, família incluindo eu próprio (a) temos a capacidade de reconhecer os sinais e sintomas da malária **Marque as respostas dadas**	(1)Discordo fortemente (2) Discordo (3) Neutro (4) Concordo (5)Concordo fortemente
4.3	Sinto que, os voluntários comunitários estão preparados para disseminar as mensagens chaves de prevenção da malária **Marque as respostas dadas**	(1)Discordo fortemente (2) Discordo (3) Neutro (4) Concordo (5) Concordo fortemente
4.4	Sinto-me confiante que sei como me prevenir da malária **Marque as respostas dadas**	(1)Discordo fortemente (2) Discordo (3) Neutro (4) Concordo (5)Concordo fortemente

4.5	Sei aonde posso procurar o tratamento para malária **Marque as respostas dadas**	(1) Discordo fortemente (2) Discordo (3) Neutro (4) Concordo (5)Concordo fortemente
4.6	O uso da rede mosquiteira todas as noites é importante para que eu possa me prevenir da malária **Marque as respostas dadas**	(1) Discordo fortemente (2) Discordo (3) Neutro (4) Concordo (5) Concordo fortemente
4.7	Os meus familiares, amigos e vizinhos influenciam na minha tomada de decisão em relação a minha saúde **Marque as respostas dadas**	(1) Discordo fortemente (2) Discordo (3) Neutro (4) Concordo (5) Concordo fortemente
4.8	Os cultos religiosos são os lugares em que oiço as mensagens sobre prevenção da malaria **Marque as respostas dadas**	(1) Discordo fortemente (2) Discordo (3) Neutro (4) Concordo (5) Concordo fortemente

4.9	As sessões de diálogos comunitários ajudaram-me a entender melhor como me prevenir em relação a malaria **Marque as respostas dadas**	(1) Discordo fortemente (2) Discordo (3) Neutro (4) Concordo (5) Concordo fortemente
4.10	Os voluntários/activitas/professores desempenham um papel fundamental na disseminação de mensagens chaves sobre prevenção da malaria **Marque as respostas dadas**	(1) Discordo fortemente (2) Discordo (3) Neutro (4) Concordo (5) Concordo fortemente

5. Dinâmica de género no tratamento e prevenção da malaria		
5.1	Papel dos homens na prevenção/no tratamento da malária na sua comunidade **Marque as respostas dadas**	(1) incentivar uso de rede mosquiteira (2) Acompanhar a parceira a US (3) Acompanhar os filhos na US (4) Queimar folhas/eucalipto (5) Serpentina/Baygon (6) Usa repelente (7) Queimar o lixo (8) Tratamentos tradicionais (9) Melhorar a higiene da casa (10) Melhorar a higiene pessoal (11) Pulverizar / fumigar a casa (12) Não sabe

5.2	Papel das mulheres na prevenção/no tratamento da malária na sua comunidade **Marque todas as respostas**	(1) incentivar uso de rede mosquiteira (2) Acompanhar o parceiro a US (3) Acompanhar os filhos na US (4) Queimar folhas/eucalipto (5) Serpentina/Baygon (6) Usa repelente (7) Queimar o lixo (8) Tratamentos tradicionais (9) Melhorar a higiene da casa (10) Melhorar a higiene pessoal (11) Pulverizar / fumigar a casa (12) Não sabe (13) Outros: especifique_____
5.3	Na sua comunidade, será que os homens são envolvidos na tomada de decisão sobre os serviços de saúde, quando a sua esposa/parceira está grávida?	(1) Sim (2) Não
5.4	Em função da sua experiência, quando os homens têm malária, o que fazem? (Tratamento) **Marque todas as respostas**	(1) Ficam em casa (2) Vão ao hospital/US (3) Procuram tratamento tradicional (4) Não sabe (5) Outro: especifique_____
5.5	Em função da sua experiência, quando as mulheres têm malária, o que fazem? (Tratamento)	(1) Ficam em casa (2) Vão ao hospital/US (3) Procuram tratamento tradicional (4) Não sabe (5) Outro: especifique_____

Hora do fim da entrevista ..... ANOTE AQUI E TAMBÉM NO CABEÇALHO

B. Estas são todas as perguntas que desejava fazer-lhe hoje. Gostaria de me fazer alguma pergunta?

SE NÃO PODE RESPONDER A ALGUMA DAS PERGUNTAS DA INQUIRIDA, SUGIRA-LHE PARA FALAR COM O SUPERVISOR, DA PESQUISA DRA. LILIANA PINTO, CEL: 824728760

Muito obrigada pela sua participação na nossa pesquisa!

OBSERVAÇÕES DA INQUIRIDORA:

<table>
<tr><td colspan="2">NÚMERO DE IDENTIFICAÇÃO |__||__||__||__||__||__||__|</td><td colspan="2">SUPERVISOR |__|</td><td colspan="2">INQUIRIDOR |__||__|</td></tr>
<tr><td colspan="2">DATA |__||__||__||__||__||__|</td><td colspan="2">Hora do início ..... Hora do fim .....</td><td colspan="2">DURAÇÃO (minutos) |__||__||__|</td></tr>
<tr><td colspan="3">LOCAL DA ENTREVISTA: 1.SU 2.Outro .....</td><td colspan="3">NÚMERO DE VISITAS: 1 2 3+</td></tr>
<tr><td>ENTREVISTA COMPLETA?</td><td>1.Sim
2.Não</td><td>SE INCOMPLETA, PORQUÊ?</td><td colspan="2">1. Recusou
2. Não disponível
6. Outro (Esp.) .....</td><td>DIGITADOR |__|</td></tr>
</table>

UMA VEZ QUE ESTA PAGÍNA ESTIVER COMPLETAMENTE PREENCHIDA, SEPARE-A DO RESTO DO QUESTIONARIO E GUARDE NUM ENVELOPE SEPARADO.

Appendix 5: Data collections tools – study III

GUIÃO DE DISCUSSÃO DE GRUPO MULHERES/HOMENS

Propósito: nesta conversa, nós iremos explorar os vossos conhecimentos, atitudes e o nível das práticas relacionadas com a prevenção, o tratamento e o controlo da malária na vossa comunidade. A informação que vocês ião providenciar vai ajudar-nos a elaborar mensagens de comunicação e implementar intervenções que vão ajudar a prevenir e a controlar a malária. Por favor, notem que as vossas respostas serão tratadas como sendo confidenciais e nenhuma referência será feita a qualquer pessoa no acto de disseminação da informação. Obrigado.

1. Conhecimento e percepções sobre a transmissão, prevenção e tratamento da malária entre homens e mulheres.

a) Conhecimento geral sobre a prevenção, o tratamento e o controle da malária

1. Como é que a prevenção, o tratamento e o controlo da malária são promovidos na sua comunidade?
2. Como é que a sua comunidade elimina os mosquitos? São bem sucedidos? O que mais pode ser

feito?

3. Na sua comunidade, o que é que as pessoas normalmente fazem para evitar a malária. Será que eles têm sucesso?
4. O que é que eles normalmente fazem quando têm malária?
5. O que acontece quando alguém tiver malária e não procurar tratamento? Por que as pessoas não procuram cuidados médicos?
6. O que é que os homens fazem nesta comunidade, quando têm malária? [Procure saber sobre cuidados médicos, curandeiro tradicional].
7. Que tipo de estratégias é que a sua comunidade usa para prevenir e tratar a malária?
8. Será que as mulheres e os homens têm estratégias diferentes? Que fontes é que eles procuram quando alguém da sua família adoece com malária? [Procure saber sobre a procura do curandeiro tradicional versus o centro de saúde]
9. Que tipo de impacto é que a malária tem sobre a vida diária dos membros da sua comunidade?
10. Na sua opinião, quem você acha que seja mais vulnerável para contrair a malária, por quê?
11. Como é que a sua comunidade lida com o tratamento de crianças menores de cinco anos quando apresentam sintomas de malária? Faça o favor de elaborar.
12. Como é que a sua comunidade lida com a tomada de decisão sobre o tratamento da malária? [Procure saber sobre o envolvimento dos homens na tomada de decisão].
13. Qual é o papel dos homens na tomada de decisão sobre o tratamento e a prevenção da malária?
14. Na sua opinião, quão importante é que os homens e as mulheres dialoguem e tomem decisões em conjunto sobre a saúde do seu agregado familiar?
15. Na sua comunidade, será que os homens são envolvidos na tomada de decisão sobre os serviços de saúde, quando a sua esposa/parceira está grávida? Na sua opinião, há algo que poderia ser melhorado?
16. Na sua opinião, quando uma mulher está grávida, como é que ela deve ser tratada da malária? Qual é o processo normal, desde a infecção pela malária até a procura do tratamento e a prevenção de futuras infecções?
17. Qual é o papel dos homens na prevenção/no tratamento da malária na sua comunidade?
18. Qual é o papel das mulheres na prevenção/no tratamento da malária na sua comunidade?
19. O que é que as pessoas na sua comunidade fazem em relação à pulverização intra-residual? Você sabe quem é que toma essa decisão para todo o agregado familiar?
20. Você conhece membros da comunidade que estão contra a pulverização intra-residual? O que é feito para influenciar a aceitação da pulverização? Como é que isso é feito?
21. Qual é o papel das redes mosquiteiras tratadas? Quem toma a decisão de obter, usar e cuidar da rede na sua comunidade?
22. Será que há membros da sua comunidade que têm, mas não usam redes? Porque você acha que isso acontece? [Procure saber sobre mitos, barreiras, dificuldades em usar, ou não, as redes].
23. Na sua opinião, será que as redes estão a ser utilizadas de forma correcta? Como é que você vê o seu uso na sua comunidade? (Procure saber sobre o uso indevido das redes)

2. A participação em diálogos comunitários sobre a malária influencia as atitudes de homens e mulheres sobre a prevenção e o tratamento da malária.

1. Você acha que o programa Tchova, Tchova STOP a Malária ajudou a sua comunidade na obtenção de mais informação sobre a malária? Por favor elabore.
2. Como é que os diálogos comunitários impactaram a comunidade em geral?
3. Você acha que todos estão dispostos a implementar estratégias de prevenção? Se não, quem são as pessoas contra a prevenção da malária?
4. O que você acha que são as melhores estratégias para influenciar mudanças na sua comunidade?

3. **Factores ideacionais que permitem comportamentos de prevenção e tratamento da malária e que podem ser usados para desenhar intervenções de comunicação mais eficazes em Moçambique.**
    1. Na sua opinião, o que pode ser feito para melhorar os programas de intervenção comunitária contra a malária na sua comunidade?
    2. Como é que os homens e as mulheres podem ser coesos no processo de tomada de decisão para protegê-los, a sua família e a sua comunidade contra a malária?
    3. Na sua opinião, quais outros factores podem ajudar no controle, na prevenção e no tratamento da malária na sua comunidade?

Conclusão:

Você quer complementar algo sobre o que você disse? Você tem alguma pergunta?
Chegamos ao final da nossa discussão em grupo. Obrigado pela sua participação.
Antes de desligar o gravador, registe o tempo da conclusão da discussão.