

# The reality of the Noncommunicable disease policy landscape in Low Income Countries: the example of Mozambique

**Khatia Rebeca Munguambe** (✉ [k.r.munguambe@gmail.com](mailto:k.r.munguambe@gmail.com))

Universidade Eduardo Mondlane Faculdade de Medicina <https://orcid.org/0000-0003-3888-5126>

**Tavares Madede**

Universidade Eduardo Mondlane Faculdade de Medicina

**Vasco Muchanga**

Universidade Eduardo Mondlane Faculdade de Medicina

**Claire Somerville**

Graduate Institute Geneva

**David Henri Beran**

University of Geneva: Division of Tropical and Humanitarian Medicine

**Albertino Damasceno**

Universidade Eduardo Mondlane Faculdade de Medicina

---

## Research Article

**Keywords:** Non-communicable diseases, policy, Mozambique

**Posted Date:** February 16th, 2021

**DOI:** <https://doi.org/10.21203/rs.3.rs-240060/v1>

**License:** © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

---

# Abstract

**Background** Noncommunicable diseases (NCD) are the leading cause of morbidity and mortality worldwide with a disproportionate burden affecting low- and middle-income countries (LMIC). Mozambique, is a low income country situated in Southern Africa with an emerging burden of NCDs, but still facing a large challenge with regards to communicable diseases. Using the policy prioritisation framework developed by Shiffman and Smith this study aims to present the different elements that have shaped the current policy landscape for NCDs in Mozambique.

**Results** The policy review identified 18 documents, and seven KIs were interviewed. The policy community could be seen as cohesive in that a few leading experts in Mozambique agreed on both the challenges of NCDs and the possible response, but overall leadership was lacking. Although the Ministry of Health and its NCD Department were seen as the guiding institutions the Department was not resourced to be able to fulfil its mandate. Some external resources were available to assist, but these were insufficient. In addition civil society mobilisation was missing. With regards to ideas three disconnects were present: language used in overarching government documents and their translation into practice; the views of experts; and the perceptions of NCDs in a context like Mozambique in contrast to other health issues. The NCD Department and different strategies and government documents laid out the governing structure, but again a lack of resources hampered progress. This was compounded by a lack of understanding of the problem and solutions, as well as barriers to integrate the NCD response with HIV/AIDS for example.

**Conclusions** This study shows that despite gaining prominence on the global health agenda, NCDs have yet to truly gain a strong foothold on the policy agenda of LMICs such as Mozambique. In order to do this both governments and donors need to be sensitised to this issue as well as clear guidance developed to enable countries to have practical solutions to address both prevention and treatment of NCDs in underfunded and weak health systems, but also be able to build on existing initiatives to improve the health and well-being of populations.

## Background

Noncommunicable diseases (NCDs) are the leading global cause of death, being responsible for 70% of deaths globally, with a rising burden in low and middle income countries (LMICs), where almost half of the worldwide premature NCD deaths occur [1]. NCDs disproportionately affect the poorest regions and populations, who are already the most affected by the existing burden of infectious diseases [2, 3]. This double burden of disease is driven by poverty, globalization of marketing and trade of health-harming products, population growth, rapid urbanization and related habits [4, 5].

Visible responses to NCDs targeting LMICs are relatively recent on the global health agenda, with the first evidence of a global response in 2011 with the second health-related United Nations High-Level Meeting, after the 2001 meeting on HIV/AIDS. This meeting resulted in the World Health Organization (WHO)

developing a Global Action Plan (GAP), endorsed by the 66th World Health Assembly, which provides “a road map and a menu of policy options for Member States” with the aim to achieve “9 voluntary global targets, including that of a 25% relative reduction in premature mortality from NCDs by 2025” [6]. In addition from a development agenda perspective, NCDs were not included in the Millennium Development Goals, but a specific NCD-related target is incorporated within the Sustainable Development Goals (SDGs) [7, 8].

In Mozambique, a low income country situated in Southern Africa with a population of 28 million [9], despite the still high burden of communicable diseases (CD), emerging evidence points to the double burden of CDs and NCDs as a rising public health problem, following the trend of many LMICs [10]. The most prevalent NCDs in Mozambique are cardiovascular disease (CVD), cancer, diabetes and chronic obstructive pulmonary disease (COPD). National data derived from epidemiological studies indicate that the prevalence of hypertension in Mozambique increased from 33–39% between 2005 and 2015 [11, 12]. In the same period the prevalence of diabetes mellitus and obesity increased from 3–7% and 5% to nearly 10% respectively [11].

Given the global targets and guidance available on ensuring the implementation of NCD-related measures in countries it is important to understand the Mozambican policy landscape in the light of global policy priorities and to disentangle the disease prioritization dynamics locally. Lessons from Mozambique might also be of interest to other LMICs facing continued high burden of CDs, but with an emerging NCD epidemic.

## Methods

### 2.1. Study design

The aim of the study was to better understand the NCD policy context in Mozambique. This study was nested in a wider study on assessment of barriers, enablers and lessons for the management of NCDs and NTDs at primary health care level in Mozambique [13]. The study took a qualitative approach consisting of a document review complemented by key informant (KI) interviews. The focus of the review was on key elements in the Mozambican policy context with potential to have influenced the evolution of policies related to NCDs.

### 2.2. Data collection

For the policy documents, a web-based search of the literature was conducted on Google Scholar, PubMed, national governmental portals, the Ministry of Health (MoH), and the National Health Institute's websites. Physical libraries of the MoH and academic institutions such as the Eduardo Mondlane University (UEM) were also visited. Additional documents were identified through snowballing during the KI interviews and analysis. The timespan cut-off for the analysis was from 2002, the year in which Mozambique ratified the 1999 South African Development Community (SADC) Protocol on Health [14], to 2015. However, to understand the historical context, existing documents since 1975 (Mozambique's independence year) were considered.

Interviewed participants were purposively selected and included individuals from the MoH who were considered to have been and/or to still being engaged in policy making, planning, and program management, as well as bilateral and multilateral implementation partners of the MoH. The interviews were carried out individually in person by one to two researchers, who are also authors of this manuscript, in Portuguese or English. The questions posed during the interview were based on an interview guide of open-ended broad questions allowing for in-depth discussions around each topic featured on the guide. The aim of the questions was to explore the context and drivers with regards to NCDs policies in Mozambique.

### **2.3. Data management and analysis**

Documents were reviewed by the researchers in order to verify the inclusion or not of issues directly or indirectly related to NCDs. This was accomplished by means of content analysis that was managed through a matrix developed in MS Excel, into which the excerpts of the documents containing mention of NCDs in general and/or CVD, hypertension and diabetes as well as related risk factors were inserted.

Interviews were audio-recorded and transcribed *verbatim*. Thematic analysis was performed based on Shiffman and Smith's framework [15], which comprises four pillars, namely: (i) actor power (the strengths and influential capacities of the individuals and entities engaged or that should be engaged in influencing policy making or change); (ii) ideas (reflecting the alignment of the positioning of all who are engaged or should be engaged in the process); (iii) political context (opportunities and momenta for policy making or change as well as enabling platforms for policies to stand on); and (iv) issue characteristics (the characteristics, visibility and impact of the health problem *per se* and/or compared to other problems). Although Shiffman and Smith's framework [15] is for a global analysis of the policy context, it was considered that this approach could be applied at a country-level. The interviews and documents were then combined to present the results below using the four components of the Shiffman and Smith's framework [15].

### **2.4. Ethical considerations**

This study was approved by the UEM's Faculty of Medicine and Maputo Central Hospital's Institutional Review Board (ref: CIBS-FM&HCM /16) as well as by the Commission Cantonale d'éthique de la recherche Genève. The purpose of the study was explained to participants and written informed consent was obtained given the fact that the number of people involved in NCDs in Mozambique is small, and to ensure confidentiality, each KI is identified with a specific number, e.g. KI1.

## **Results**

### **3.1. Characteristics and content of the policy documents**

The policy review identified 18 documents, among which 5 pertaining NCDs. (Table 1)

**Table 1: Details and scope of the documents found for the policy analysis**

Type of document	Document references
Overarching vision documents, and cross-cutting issues (gender, UHC, PHC)	<ul style="list-style-type: none"> <li>▪ The Republic of Mozambique’s Constitution (2004)</li> <li>▪ Social Protection Law, 2007</li> </ul>
Government strategic documents	<ul style="list-style-type: none"> <li>▪ The Government’s five-year Program (2005-2009), 2004</li> <li>▪ Agenda 2025 – The Nation’s strategic vision, 2003</li> <li>▪ Gender policy and its implementation strategy, 2007</li> <li>▪ The Government’s five-year Program (2014-2019), 2013</li> <li>▪ The National Development Strategy (2015-2035), 2014</li> </ul>
Health sector documents	<ul style="list-style-type: none"> <li>▪ The Health Sector Strategic Plan (2014-2019)</li> <li>▪ National health services regulation, 2002</li> <li>▪ List of essential medicines, 2010</li> <li>▪ Traditional Medicine Policy, 2004</li> <li>▪ The National Community Involvement Strategy for Health</li> <li>▪ The Health Promotion strategy</li> </ul>
General NCD documents	<ul style="list-style-type: none"> <li>▪ National Strategic Plan for the Prevention and Control of NCDs (2008-2014), 2008</li> <li>▪ Tobacco consumption and marketing regulation, 2007</li> <li>▪ Regulation on the control of the production, marketing and consumption of alcoholic beverages, 2013</li> </ul>
Specific NCDs documents	<ul style="list-style-type: none"> <li>▪ Norms for Diagnosis, Treatment and Control of Hypertension and Other Cardiovascular Risk Factors, 2011</li> <li>▪ Diabetes Mellitus training module, 2017</li> </ul>

### 3.2. Informants’ characteristics

Seven KIs (4 female and 3 male) were interviewed with each interview lasting on average 60 minutes.

### 3.3. Themes emerging from documental analysis and interviews

This section presents the thematic analysis which used Shiffman and Smith’s framework [15] to understand the factors influencing the visible and non-visible policy changes with regards to prioritization

of NCDs in Mozambique combining both the document review and KI interviews.

### 3.4. Actor power

Actor power refers not only to the leadership of individuals involved in policy making or related processes, but also how cohesive the policy community is with the backing of guiding institutions or networks [15]. Under actor power, the mobilization of civil society in order to advocate at all key levels of influence is crucial.

The policy community could be seen as cohesive in that a few leading experts in Mozambique agreed on both the challenges of NCDs in Mozambique and the possible response. That said two challenges existed with regards to the policy community. Firstly, this was a limited set of individuals who despite their standing were unable to expand the cohesion beyond themselves to higher echelons in the MoH, other governmental institutions or donors.

*The little that was done at that time was because of [the NCD head of department]'s noise. So you must have fibre to continue fighting. This was her fight - KI-1*

The lack of leadership was clearly illustrated by one respondent, who compared Mozambique to Tanzania, an equally low-resourced country but seemingly more responsive to NCDs.

*You know, Tanzania had only 2 or 3 champions there... They made a lot of work with a lot of impact. They do everything. They do research. They do policy influence. They do everything in Tanzania. You go there, they did not have money. They have the exact same situation as we have. Now, in Tanzania, you go to a health facility ...they do glucose to everyone... What did they do differently? It's because they had champions and drivers, no more than that - KI-2*

The other issue was the possible focus of this group on clinical aspects, as many of them were clinicians, versus more public health interventions. In addition, although the NCD Strategy developed in 2007 [16] was integrated in its cross-cutting approaches to addressing different NCDs external support and funding was mainly focused on CVD and diabetes.

Interviewees clearly distinguished two periods in terms of leadership on the NCD agenda with the “early” years having strong technical leadership within the Ministry of Health supported by external expertise both from Mozambique and abroad. However, they stated that currently there was a lack of leadership. Some factors leading to the currently limited number of NCD champions in the country were described by the interviewees. First, there is the perception that the eminent, highly experienced NCD professionals previously playing an active role on the agenda had switched their focus to their own agendas mostly in the field of research, academia and health care provision. Second, the drivers for the creation and maintenance of new champions had shifted, meaning that what motivated professionals of older generations no longer motivated current ones.

*Some of these champions are already getting retired, one of them....that one is still going on to play different rounds at the same time, so I don't see him as a champion in noncommunicable diseases... To find them today it's very difficult...– KI-5*

Financial constraints were also highlighted as a reason for a lack of leadership. Due to the state's lack of capacity to provide adequate salaries to its staff, retention is difficult. One respondent depicted this current situation by comparing it with the past, when professionals were motivated by the cause, not the money.

*When you have money, you have champions. Money has decided everything. No more champions if you don't pay them. -KI-2*

The MoH was seen as the main guiding institution by all KIs. On one hand, it was viewed as the entity that missed several opportunities to champion the needed drive to push NCDs into the national agenda, and on the other hand it was also seen as the central actor who could generate such a drive.

Interviewer: What opportunities do you see in the future for the improvement of... [NCD prioritization]?

*Interviewee: What do I see? Health champions within the Ministry of Health. Health champions everywhere. – KI-3*

*It all boils down to political will...you may lack everything, including funding, but if there is no political will then you will not even get the funding you need. – KI-1*

Within the MoH the NCD Department created in 2002, was responsible for the development and implementation of the NCD strategy [16]. However, this Division was not seen as powerful enough. The actions of this Division were limited and somewhat “underground”, as they were constantly feeling the lack of backing from higher level actors on the Government side, often with opposing ideas with regards to whether and how to prioritize NCDs among the numerous challenges faced by the health system.

*We couldn't do much more because we had no support, the department had only two persons, but we had no space to make structural decisions. If it [the department] was a national directorate perhaps we would have been able to do much more – KI-4*

The absence of the much needed patronage of MoH as an institution was revealed through respondents' recollections on missed opportunities to use their potential power to advocate for the prioritization of NCDs:

*Imagine you are at a Coordination Board meeting [top-level planning annual meeting meetings chaired by the minister], and you have managed to include your hypertension topic in the agenda. Suddenly, they decide to cut the topics because time is running and different sectors still haven't talked...the first topic that they cut is your [hypertension] topic! And then you think that you have to fight harder, alone – KI-1*

In addition as highlighted by one of the respondents policy makers lack commitment to prioritise NCDs due to their perception that the typical time period of strategic documents did not allow to set and fulfil NCD targets.

*Noncommunicable diseases are difficult to control. The time horizon of the five-year plans is short. It is not right for the Ministry to say that it did not meet the NCD targets because there are no immediate results for NCDs. Politicians change every 5 years, some stay but the momentum is lost – KI-5*

Despite the very small number of actors within the MoH, and their low sense of self-efficacy, they had strong links with actors outside the MoH, both nationally and internationally. This included for example the WHO, World Diabetes Foundation (WDF), International Insulin Foundation (IIF) or Diabetes UK [17–19]. Such international links were also present for CVD and to a certain extent for cervical cancer through work with the US Centres for Disease Control. This was especially true during the initial phase of the NCD policy context in Mozambique.

WHO also played an important role throughout the NCD process in Mozambique, with beyond the technical support some fortuitous elements that enabled Mozambique to move forward with the NCD agenda. As stated in the quote below, the absence of a language barrier, which is usually a factor that hinders the international networking potential of Mozambican leaders, had an important role to play.

*We had a lot of support from the regional representative of NCDs [at WHO] in Africa, since he was Angolan and we [Mozambique] were the only African Lusophone country represented. - KI-4*

Civil society mobilisation around the overall issues of NCDs in Mozambique can be seen as lacking. That said non-governmental organizations especially in the area of CVD and diabetes were present in the overall environment. For CVD much of this was led by the professional association. Regarding the role of this association there was a certain disconnect and lack of inclusiveness by the MoH, but also members of this association themselves did not necessarily expecting to be involved in policy-making.

*What we do, [is that] we're not much involved in policy – KI-6*

For diabetes the National Association for Diabetes (AMODIA) had been active in the area of diabetes and provision of care. Through AMODIA external links had been established through their involvement in carrying out the Rapid Assessment Protocol for Insulin Access (RAPIA) with international partners, the IIF and financial support from the WDF [18, 20]. This work resulted in additional funding and a Twinning project [19] which further supported the development of the National NCD Action Plan and also resulted in the second RAPIA as a joint effort between the MoH, AMODIA and IIF [17, 21].

## Ideas

Ideas in Shiffman and Smith [15] framework refer to how the health problem attracts attention through the way it is described, which in turn depends on how easy it is to convey the problem and solutions. In Mozambique three disconnects can be seen with regards to the ideas component. Firstly, the overarching language used in certain key government documents starting with the Constitution and the Social Protection Law, which consistently highlight, among several fundamental principles, universality, equality and inclusiveness. Statements such as *"...all citizens shall have the right to medical and health care, in accordance with the law, as well as the duty to promote and defend public health..."*, suggest that the State views health care delivery as a basic right and their duty from the outset. However, in practice this is not the case due to donor priorities, a weak health system reliant on external support as well as the verticalization of responses. Examining the contents of government strategic documents (Table 1) which have as their role to operationalise the overall vision of the government, it is clear that there is still dominance of CDs, such as, malaria, TB, HIV/AIDS, leprosy, and cholera, with little or no mention of NCDs. This is evident, for example, in the 2025 Government Agenda (launched in 2003), which is highly influential in the definition of policies, programs, and even funding priorities, but does not include NCDs.

The next disconnect is within the sphere of policy makers, public health and healthcare providers and their views on the issue of NCDs in Mozambique and the required response. For policy makers, especially those outside of the MoH, the challenge of NCDs is a lack of true understanding of the issue, as highlighted by one KI.

*The problem is still in Africa. It's still here. Politicians, government officials, they don't really understand what does it [NCDs] mean. Although, the majority of them they have diabetes and high blood pressure, but they are not treated, most of them, here. They will go and be treated in the UK, whatever, Denmark, Sweden. They go there and they have very good medicine, so they are not worried. They think they are the only ones that have it. – KI-2*

Included in the National Strategic Plan for Prevention and Control of NCDs (2008–2014) [16], is a focus on the common risk factors for NCDs and the need for awareness raising as a driving force to convey the health problem to the public's attention. The strategies proposed take a public health approach to NCDs, with a focus in the Strategy on using IEC strategies to raise awareness and change community behaviours related to the risk factors, as well as health professionals' attitudes and practices. However, practitioners tend to focus on diagnosis, appropriate management, and complications and mortality prevention, which they verbalise as being highly problematic at all levels of care. Linked to this misalignment regarding perceived solutions to NCDs, some respondents felt that there is a lack of communication between the NCD department and the National Directorate of Medical Assistance and its respective programs and departments.

*Myself, as an NCD [person] I work mostly with the Nutrition [department] and Sports Medicine. Why do I have a relationship [with them]? Because when we talk about noncommunicable [diseases] we talk about diet, lifestyles, physical activity, so it is more related to...for example if I talk about hypertension, I talk*

*about salt consumption, therefore I have to enter into nutrition...find out if they are doing something that requires population education so that they decrease salt consumption. – KI-7*

Despite this mismatch of ideas between the different actors, a common view is shared among them which is that, there, is a poor translation and demonstration that NCDs are threatening the health and well-being of the Mozambican population, therefore the gap between CD and NCD priorities is unacceptably high.

Finally, the last disconnect is with the overall perceptions of NCDs in a context like Mozambique, where due to the chronic nature of most NCDs these are not perceived to be threatening compared to other diseases leading to more visible morbidity and mortality.

*Hypertension doesn't kill us immediately. Malaria will kill...five days and you are dead. Hypertension will kill afterward, the patient suddenly dies or the patient suddenly has a stroke. There's no knowledge between a stroke [linking hypertension and stroke] ... for the general population, stroke is for disabled people related to the act of a very strong traditional doctor. I talk to someone, I don't like you and I want to give you some force and it immobilizes you. It's not because of any disease... - KI-6*

The above quote further reveals that the ideas about NCDs were not disseminated with enough strength and consistency, as compared for example to information about malaria, which is a disease about which people, including the general public, have no doubt in regard to its potential fatality.

The lack of knowledge on NCDs among different segments of society, including policy makers, comes from the history of weak existing evidence on the magnitude and impact of NCDs in Mozambique, which in the view of some respondents is obfuscated by the overly disseminated information about CDs, and in the view of others is due to the national health system's inability to generate reliable routine data on NCDs.

*So far, diabetes is still a name which is different from HIV, from malaria, from accidents. People, they understand what this is, they have lived with it. Diabetes... although the numbers show that it is the biggest catastrophe that we might have in the world ... our politicians, some of them professional that are there dealing with patients, they don't understand the state at which diabetes is now, and start [being] active when it is too late. No one understands... It's complications and impact in the future. I don't blame them. Everyday they're talking about seven million cases of malaria, and they think, yeah, seven million ... and malaria kills immediately, and all those things. For them, some of these infectious diseases are still in their mind as their major priority. – KI-2*

## **Political contexts**

Context comprises the environment where the actors navigate but also their awareness of the features and changes in such environment and abilities to detect cues to action based on opportunities from which to take advantage of to influence other key actors [15].

There is no doubt that Mozambique had many “policy windows”, be it from the global, regional or national perspective. From a historical perspective the first policy window was a shift in the political environment at regional level in 2002, which drove subsequent inclusion of NCDs in national action plans in the African Region. Policy windows also existed through the implementation of different studies. For example the implementation of the STEPwise Approach to Chronic Disease Risk Factor Surveillance) studies were key contextual driver [12].

*In 2002 or 2003...it was the first time that, me and another doctor ... We were invited to go to Cape Town, and we were trained for STEPS-1... It was supposed to start with an evaluation of non-communicable disease risk factors. We did a pilot just to see what would be our capacity to do this all over the country. When the summary results came out, we said "Look, we can do this, you know?". – KI-4*

The results from the Mozambique study were some of the most comprehensive in the WHO African Region [22–28] and provided much needed data on the challenge of NCDs in Mozambique. The RAPIA in 2003 added to the overall knowledge of barriers to diabetes care and offered a policy window to highlight the challenges of diabetes management in Mozambique [18].

Of course the United Nations High-Level meeting in 2011 was also a policy window for Mozambique. However, not much was seen as a result of this meeting, as by 2011 the national action plan on NCDs had already been adopted, the NCD department had already been functioning for 8 years, and it was mostly a matter of implementing what was foreseen in the plan which was highly dependent on the national environment and funding.

The creation of the NCD Department within the MoH in 2003 was tangible evidence of the government’s commitment to this group of diseases and created the infrastructure for Mozambique to develop its NCD response. Some argued that this was mostly due to external pressure to have something visibly done about NCDs at national level. Therefore, despite this apparent commitment to NCDs, some respondents consider that the State’s response was and still is weak. Although the orientation to create the department was top-down, the department’s founding members seized this opportunity to establish a structure and what kept the department going was their capacity to take advantage of their outreach to the external context. In particular, the networks established with external collaborators.

This organisational structure was complemented by the following policy documents: The National Strategic Plan for Prevention and Control of NCDs (2008–2014) [16], which prioritises asthma, diabetes, and CVDs (including hypertension), and supports an integrated response to NCDs through awareness raising of NCDs and risk factors, improved access to and quality of services, training actions, strengthened surveillance, research, monitoring and evaluation systems. Although currently out-dated, this is the first document presenting clear indicators, yearly targets and responsibilities in regard to each

of the proposed actions. The second document is the tobacco consumption and marketing regulatory document (2007) [29], which refers to the common risk factors for NCDs, and specifies CVDs. The concrete actions oriented by this document are framed from the commercial, rather than the health perspective, focusing on supply reduction, taxation, fixing of high prices to the consumer, and the prohibition of advertisement and sales to minors, with some importance given to awareness raising, assuming that these measures contribute to the attainment of health objectives. The final document is the regulation on the control of the production, marketing and consumption of alcoholic beverages (2013) [28], which addresses the response to alcohol consumption related health risk factors along similar lines as the tobacco regulatory document. While the first document is specific for the Health Sector, the latter two imply the engagement of not only the Health but also of at least the Industry and Commerce sectors, offering some room for intersectoral action. Remarkably, despite dating back to as early as 2007 and 2008, meaning that their conceptualization took place even earlier, they already referred to common risk factors to NCDs, in alignment with the global policies in terms of language and priorities. This shows the early reflection of Mozambique's formal recognition of NCDs as public health issues, before these were firmly on the global agenda.

Among the Government strategies, the National Development Strategy (2015–2035) recognizes the chronically ill as a group requiring special attention [30]. However when it comes to data to support this statement, it is heavily linked to HIV/AIDS, evidenced by the lack of indicators related to NCDs. The Government's five-year Action Plan (2014–2019) was the first to notably include NCDs either from the perspective of the diseases of this category in general, or from the stand point of risk factors [31]. However, the indicators seem to have a sports and political undertone rather than focused on health or NCDs, as they relate to the number of medals won in international competitions and the number of young beneficiaries of youth initiatives, whereas indicators of lack of physical activity as risk factor are disregarded. Moreover, the sole focus on the youth contradicts the efforts for streamlining the issue of equality expressed in all higher level policy and strategic documents [32].

Regarding health sector documents, the Strategic Health Sector Plan (PES) alludes to NCDs, with a focus on reducing the currently progressive trend of NCDs [33]. Among other important health sector-level documents, the Essential Medicines List (2010) [34] had some reference to NCDs, and the Health Promotion strategy (2015–2019) [35] recognized that NCDs, in particular CVD, cancer, diabetes and COPD, share four risk factors: tobacco consumption, excessive alcohol consumption, poor eating habits and lack of physical activity. This seems to be the first policy document actively aiming to encourage healthy life styles and well-being, directly linking these to the control of NCDs. Previous NCD policy documents had mostly focused on diagnosis and treatment of NCDs rather than preventive measures at community level, even though the local literature does not touch upon the most cost effective ways to tackle NCDs in the Mozambique context. The scattered mention of selected NCDs in policy documents seems to have resulted from political level (top-down) pressure to comply with the ratification of the SADC Protocol on Health [14], rather than a sector level initiative to address those concrete health problems, as evidenced by the very little concrete action on the ground, as a result of weak coordinated disease control efforts, compared to other health problems such as communicable diseases and

maternal health. This impacted the political context with opportunities to address the NCD challenge in Mozambique and develop the first national NCD strategy.

Despite the pressure to act upon NCDs at national level, the NCD department had to go through lengthy efforts to advocate for the inclusion of NCDs in the National Health Policy. Indeed this policy was revised in that direction but the specific changes related to NCDs were not approved. Besides attempts to influence the National Health Policy, the NCD department engaged in policy making pertaining specific issues. A specific case was that of the salt regulatory document, which was never approved.

*We started working on the salt issue. It was the NCD and the Nutrition department. The document was drafted, it was to adjust the quantities of salt in the bread. The NCD department exposed [to me] the problem and the Nutrition Department had to establish norms for public consumption foods. We approved the norm, but it was never discussed in the parliament. More important things had to happen at the time, therefore they [legislators] may put these things behind. - KI-3*

## **Issue characteristics**

The characteristics of the issue being addressed include the extent to which there are credible indicators that can be used to assess severity and to monitor progress and the size of the burden, as well as an evidence base on cost-effective interventions that can be implemented at scale [15].

Soon after its inception, the NCD department was clear about the need for data as a tool to increase the visibility of NCDs, and was very pro-active not only in influencing the generation of such data at national level, but also on the participation in research activities to obtain such data.

*In 2004, we fought with the National Institute of Statistics to include two modules in the Health and Demographic Surveys. WHO gave us money...and for the first time in Africa we had a database with population level information on trauma and risk factors for NCDs.- KI-4*

In parallel in 2003 the RAPIA provided an overview of the barriers to care for diabetes and an in-depth health systems analysis. This in turn was complemented by two rounds of the WHO STEPS surveys, the first one in 2005 [11], providing a comprehensive understanding of the burden of NCDs and associated risk factors in Mozambique. Although these studies served as a basis for the initial NCD Strategic Plan, the current leadership from the MoH do not feel ownership, and seem to be quite distanced from the results and recommendations. This is in contrast to WHO where the global NCD agenda and the local availability of data helped in furthering the NCD response in Mozambique.

*It is because the scientific evidence, we work always on the bases of evidence, so when it became noticeable that NCDs were becoming a problem based on the evidence that WHO compiled at the global level, and we had the mission to take this information to each member state – and this is what we did for Mozambique – KI-1*

Despite this data on the specific NCD burden in a context like Mozambique all government documents and strategies as well as insight from the interviews show the predominance of the communicable disease agenda. Malaria, TB and HIV/AIDS are the leading causes of disease in the country, with around 9 million cases and over 10,000 deaths per year due to malaria [36], a TB incidence rate standing at 551 per 100 000 population [37], and an HIV prevalence among adults of 13% with 25% of deaths attributable to HIV/AIDS in 2017 [2, 38]. Yet, 32% of the total mortality is due to NCDs [1]. In contrasting the impact of this prioritisation one KI stated,

*The HIV rooms in the health facilities had all the resources...the next door room had nothing... - KI-7*

The core individuals involved in NCDs saw the problems clearly with one-third of the adult population being hypertensive, that diabetes prevalence was increasing, and that the double-burden of NCDs and communicable diseases is a reality, exacerbated by the increase in life expectancy.

*The prevalence of hypertension and diabetes is increasing, therefore it is necessary for us to pay more attention also to these diseases though we know that we still have many cases of infectious diseases...at some point they will be at the same level!...and more...people are living longer [laughs] – KI-4*

Many effective interventions exist for NCDs, including the WHO's so called "Best Buys" [39] many of these included in the NCD National Strategic Plan. In the case of diabetes and hypertension, there are no disease-specific action plans or national strategies, as opposed to diseases such as cancer, HIV and malaria [40–42]. Instead there is dominance of norms, guidelines and training materials, the most prominent relating to case management: Standards for Diagnosis, Treatment and Control of Hypertension and Other Cardiovascular Risk Factors (2011), which targets specialists and PHC frontline health professionals [43] and the Diabetes Mellitus training module (2017), which seems to be a tool mainly used by Maputo Central Hospital's health care providers [44]. No evidence was found on easy access to these materials by PHC providers although in both manuals the chronic diseases approach to primary health care is considered as a gold standard strategy. On the front of research and monitoring and evaluation there has been a significant number of initiatives focused on NCDs during the period under study, ranging from epidemiological research, risk factors assessments (diet, exercise, tobacco, alcohol), and health sector's readiness studies [22–28, 45–47].

The main barrier to effective interventions being implemented are socio-economic factors which shape the governance structure in Mozambique where politicians constantly face the challenge to balance their decisions with the country's financial constraints. The 2012 report on national expenditure on health revealed that the annual per capita expenditure on health was only about US\$ 38, equivalent to 40% lower than the minimum standard recommended by WHO [48]. The budget for 2010 for the NCD Department at the Ministry of Health was US\$ 97,000 [17]. In contrast in 2012, for example, HIV, tuberculosis, malaria and reproductive health represented, altogether, 40% of the current health expenditure [48] and there was still no specific budget to NCDs, being these diseases lumped together under "general MoH expenses". From interviews with KIs resources to pursue initiatives regarding NCDs, lacked financial support.

*Unfortunately, then it becomes difficult for us. We are thinking about the solution that everyone knows, but there is no money. I... seriously, since the beginning of the year I have not had a penny from the State Budget (...)* - KI-7

*(...) you have competing priorities, very scarce resources. [...]What are the resources you have to deal with the disease pattern that is vast ... diverse? It's not a matter of political issue. You don't have enough resources to do it. It's not only financial resources. It's also qualified human resources ... enough numbers of human resources.* - KI-2

Participants expressed that CD initiatives do not seem to be impacted by the financial difficulties faced by the entire health sector as well as not being open for collaboration.

*Everything was HIV. So what we managed to implement that program was a cancer screening ... was cervical and breast cancer screening. Because in the documents, you wrote a lot of possibilities to work with HIV programs.* – KI-7

*Cancer has more funds because the majority of [HIV/AIDS] patients have pre-cancerous lesions. Us, the NCD people, exposed the case so that the HIV [program] would give more money for cervical cancer screening, and CDC eventually accepted.* – KI-5

*When I went to speak with the head of the HIV program, she said no, we have so many good works to do... Don't come around with high blood pressure...we have to go through a lot of things...It is a pity because...every month at least, these 700,000 people go through primary care to receive treatment, but they don't measure blood pressure there.* – KI-6

## **Discussion**

This study combined a content analysis of NCD-related policy documents and KI interviews drawing on Shiffman and Smith's framework [15] for analysing drivers for the prioritization of health problems at global level and applied this to the issue of NCDs in Mozambique. To our knowledge this is the first policy analysis for NCDs carried out in an LMIC using such a structured approach.

For Actor Power the NCD agenda in Mozambique in the early years was led by experts versus policy makers. As highlighted by the interviews the personal characteristics of the individual leading the NCD agenda were as important as their technical skills. Although civil society organisations existed these were focused on CVD and diabetes and not very involved in the overall policy environment. That said with external support these organisations became more involved.

With regards to Ideas, the main challenge was the overall perception of the magnitude of NCDs in comparison to CDs in the Mozambican context. More importantly is the lack of knowledge, even among policy makers, about the magnitude of the problem in terms of morbidity, mortality, existing cost-effective tools and its economic impact, on the contrary of the dominant CDs. This focus on CDs versus NCDs permeated all levels of the policy environment except for the few individuals directly involved in NCDs.

These views remained despite several policy windows at global, regional and national level. The overall governance structure was planned around the NCD Department and the documents and strategies they prepared. However, given where this Department was positioned as well as the resources allocated very little was possible for them to actually implement. One positive element in the Mozambique case study was that of data with many studies on the burden of disease and health system factors being present.. However, this was lead more from a research focus than as part of a policy response. Therefore, these data were not translated into action and in terms of interventions. In addition, a certain dichotomy can be seen between the focus on prevention at a population level, versus improving access to care. This contrast between prevention and care was also identified at a global level [49]. Health system interventions faced two challenges with regards to an overall weak health system and also a lack of openness to integration with HIV/AIDS programs.

There were a number of limitations in this study. The main one was linked to the period of analysis up to 2015, which negates any work since then. This required participants to focus on the responses retrospectively, with some of the participants having moved on to occupying other positions which may have influenced the accuracy in their responses. However, an effort to include a balanced of currently engaged and previously engaged participants contributed to a triangulation of the results and a maximization of data reliability. Very few actors that had directly been engaged in the actual policy making process or related processes were identified, reflecting the limited number of KIs. Additionally, a number of KIs did not respond to requests to be interviewed. The main limitation is the small number of individuals involved in this issue and that many of these people are known to the authors. In addition many of the authors have intimate knowledge of the NCD process in Mozambique, which raises issues of bias during the data collection, analysis and presentation. That said using a structured framework and being aware of these limitations mitigated these weaknesses. The framework chosen could be said to have limitations as it has mainly been used to analyse global policy contexts [50–54], but part of the aim of the study was to use such a framework at a national level.

A global NCD policy analysis found weaknesses in the global policy environment, hampering possible translation of the GAP to national contexts [49]. Recent data show that Mozambique scored low on the implementation of different policies included in the 2017 WHO NCD Progress Monitor [1], which was developed to assess country's achievements of the WHO's GAP. Mozambique had 4 out of 19 targets that were fully met and 3 out of 19 that were partially addressed [1]. This clearly highlights a disconnect between the global agenda and how this is implemented in an LMIC such as Mozambique. There is a need to provide concrete solutions for where countries should start. Although the WHO proposes its "Best Buys" [39] these fail to provide concrete guidance on what steps governments can take in addressing both the need for prevention and population based approaches with the need to provide access to care for those diagnosed with NCDs.

Mozambique is a model country with regards to data with two STEPS surveys providing clear evidence of the burden of NCDs. That said this data has not been effectively translated for decision makers to be included in government wide initiatives as well as to effective adapted local interventions. Strong,

national-level governance is needed and the global community needs to find ways of assisting and developing locally adapted solutions to the NCD challenge addressing both preventative and curative services [49]. In this case, the role of the State is crucial [55]. A continuous policy dialogue is required at national level, in order to align the ideas across the different actors. The internal cohesion of actors would benefit from formalized structures to accommodate their links. The financial and other sectors beyond the health sector must align their policies so that stronger bottom-up pressure is exerted over external donors and collaborators in order for them to work around a legitimised national agenda that prioritizes NCDs. In addition, given the country's financial context, there is a need for donors to be sensitized to the NCD challenge.

This raises an issue given the framework used, which has been mainly focused on global policy analyses. An additional component within the framework might be needed in countries such as Mozambique, namely an element looking at the economic circumstances of the country and their impact on the policy process might be necessary [56]. This also speaks directly to Shiffman's global health networks theories of more recent years, which point to the importance and challenges of coalition building in generating attention and resources for the health problems concerned [57]. It is reasonable to infer that some of the weaknesses observed, particularly in regard to weak actor power, lack of consensual ideas, and overlooked issue characteristics, as well as missed funding and advocacy opportunities could have been mitigated with strong coalitions. In the case of Mozambique, internal coalitions could have served both a strategic way of attracting donor interest and funding opportunities and addressed the already identified challenges linked to the policy formulation and linked actions to respond to NCDs. In parallel the international links established with different external partners could have reinforced this.

## Conclusions

One of the highlights from this study's findings was that amidst all financial challenges faced by the country, the HIV/AIDS donor landscape is, arguably, a key factor acting as a barrier to prioritization of NCDs. Further work is needed to bridge the implementation of HIV/AIDS related activities with those for NCDs. Another element was a lack of leadership highlighting that in resource constrained settings a policy agenda is often reliant on individuals rather than institutions. Finally, although Mozambique had significant amount of data on the burden of disease generated locally, this information was not used to influence policy makers. Overall this study shows that despite gaining prominence on the global health agenda, NCDs have yet to truly gain a strong foothold on the policy agenda of LMICs such as Mozambique. In order to do this both governments and donors need to be sensitised to this issue as well as clear guidance developed to enable countries to have practical solutions to address both prevention and treatment of NCDs in underfunded and weak health systems, but also be able to build on existing CD initiatives to improve the health and well-being of populations.

## Declarations

### ***Ethics approval and consent to participate***

This study was approved by the University Eduardo Mondlane's Faculty of Medicine and Maputo Central Hospital's Institutional Review Board (ref: CIBS-FM&HCM /16) as well as by the Commission Cantonale d'éthique de la recherche Genève.

### ***Availability of data and materials***

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

### ***Competing interests***

The authors declare no competing interests

### ***Funding***

This research is part of the COHESION (COmmunity HEalth System InnovatiON) Project (#160366) and is funded by the Swiss National Science Foundation and the Swiss Development Cooperation under the Swiss Program for Research on Global Issues for Development.

### ***Authors' contributions***

KM, CS and DB designed the study. KM, TM and VM collected and analysed the data under the supervision of AD. KM drafted the initial draft of the paper with input from all co-authors. All co-authors approved the final version of the paper.

### ***Acknowledgements***

The authors wish to acknowledge all their colleagues from the COHESION Project.

## **References**

1. WHO: **Noncommunicable Diseases Progress Monitor**. In. Geneva: World Health Organization; 2017.
2. Gona PN, Gona CM, Ballout S, Rao SR, Kimokoti R, Mapoma CC, Mokdad AH: **Burden and changes in HIV/AIDS morbidity and mortality in Southern Africa Development Community Countries, 1990-2017**. *BMC Public Health* 2020, **20**(1):867.
3. Bukhman G, Mocumbi AO, Atun R, Becker AE, Bhutta Z, Binagwaho A, Clinton C, Coates MM, Dain K, Ezzati M *et al*: **The Lancet NCDI Poverty Commission: bridging a gap in universal health coverage for the poorest billion**. *Lancet* 2020, **396**(10256):991-1044.
4. Popkin BM, Adair LS, Ng SW: **Global nutrition transition and the pandemic of obesity in developing countries**. *Nutr Rev* 2012, **70**(1):3-21.

5. Glasgow S, Schrecker T: **The double burden of neoliberalism? Noncommunicable disease policies and the global political economy of risk.** *Health Place* 2016, **39**:204-211.
6. WHO: **Global action plan for the prevention and control of noncommunicable diseases 2013-2020.** In. Geneva: World Health Organization; 2013.
7. Fuster V, Voute J: **MDGs: chronic diseases are not on the agenda.** *Lancet* 2005, **366**(9496):1512-1514.
8. **NCD and the Sustainable Development Goals** [<https://www.who.int/global-coordination-mechanism/ncd-themes/sustainable-development-goals/en/>]
9. INE: **IV Recenseamento Geral da População e Habitação, 2017 Resultados Definitivos** In. Maputo: National Institute of Statistics; 2019.
10. Dunachie S, Chamnan P: **The double burden of diabetes and global infection in low and middle-income countries.** *Trans R Soc Trop Med Hyg* 2019, **113**(2):56-64.
11. MISAU: **Relatório preliminar do STEPS – Moçambique 2014/2015.** In. Maputo: Ministry of Health 2015.
12. Jessen N, Damasceno A, Silva-Matos C, Tuzine E, Madede T, Mahoque R, Padrao P, Mbofana F, Polonia J, Lunet N: **Hypertension in Mozambique: trends between 2005 and 2015.** *J Hypertens* 2018, **36**(4):779-784.
13. **COHESION Project** [<http://cohesionproject.info>]
14. SADC: **Protocol on Health.** In. Gabarone: Southern African Development Community; 1999.
15. Shiffman J, Smith S: **Generation of political priority for global health initiatives: a framework and case study of maternal mortality.** *Lancet* 2007, **370**(9595):1370-1379.
16. MISAU: **Plano Estratégico Nacional de Prevenção e Controlo das Doenças Não Transmissíveis para o período 2008-2014.** In. Maputo: Ministério da Saúde; 2008.
17. Beran D, Silva Matos C: **Report on the Rapid Assessment Protocol for Insulin Access in Mozambique** In. London and Maputo: International Insulin Foundation and Ministry of Health; 2009.
18. IIF, AMODIA: **Report of the International Insulin Foundation on the Rapid Assessment Protocol for Insulin Access in Mozambique.** In. London and Maputo: International Insulin Foundation and Associação Moçambicana dos Diabéticos; 2004.
19. Yudkin JS, Holt RI, Silva-Matos C, Beran D: **Twinning for better diabetes care: a model for improving healthcare for non-communicable diseases in resource-poor countries.** *Postgrad Med J* 2009, **85**(999):1-2.
20. Beran D, Yudkin JS, de Courten M: **Access to care for patients with insulin-requiring diabetes in developing countries: case studies of Mozambique and Zambia.** *Diabetes Care* 2005, **28**(9):2136-2140.
21. Beran D, Silva Matos C, Yudkin JS: **The Diabetes UK Mozambique Twinning Programme. Results of improvements in diabetes care in Mozambique: a reassessment 6 years later using the Rapid Assessment Protocol for Insulin Access.** *Diabet Med* 2010, **27**(8):855-861.

22. Damasceno A, Azevedo A, Silva-Matos C, Prista A, Diogo D, Lunet N: **Hypertension prevalence, awareness, treatment, and control in mozambique: urban/rural gap during epidemiological transition.** *Hypertension* 2009, **54**(1):77-83.
23. Damasceno A, Padrao P, Silva-Matos C, Prista A, Azevedo A, Lunet N: **Cardiovascular risk in Mozambique: who should be treated for hypertension?** *J Hypertens* 2013, **31**(12):2348-2355.
24. dos Santos FK, Maia JA, Gomes TN, Daca T, Madeira A, Damasceno A, Katzmarzyk PT, Prista A: **Secular trends in habitual physical activities of Mozambican children and adolescents from Maputo City.** *Int J Environ Res Public Health* 2014, **11**(10):10940-10950.
25. Padrao P, Damasceno A, Silva-Matos C, Prista A, Lunet N: **Physical activity patterns in Mozambique: urban/rural differences during epidemiological transition.** *Prev Med* 2012, **55**(5):444-449.
26. Padrao P, Laszczynska O, Silva-Matos C, Damasceno A, Lunet N: **Low fruit and vegetable consumption in Mozambique: results from a WHO STEPwise approach to chronic disease risk factor surveillance.** *Br J Nutr* 2012, **107**(3):428-435.
27. Padrao P, Silva-Matos C, Damasceno A, Lunet N: **Association between tobacco consumption and alcohol, vegetable and fruit intake across urban and rural areas in Mozambique.** *J Epidemiol Community Health* 2010.
28. Pires J, Padrao P, Damasceno A, Silva-Matos C, Lunet N: **Alcohol consumption in Mozambique: Results from a national survey including primary and surrogate respondents.** *Ann Hum Biol* 2012, **39**(6):534-537.
29. Government of Mozambique: **The Regulation of Consumption and Marketing of Tobacco Decree No. 11/2007** In. Maputo: Government of Mozambique; 2007.
30. Governo de Moçambique: **Estratégia Nacional De Desenvolvimento 2015-2035.** In. Maputo: Government of Mozambique; 2014.
31. Governo de Moçambique: **Programa Quinquenal do Governo para 2010-2014.** In. Maputo: Government of Mozambique; 2010.
32. Governo de Moçambique: **Resolução no 12/2015 de 14 de Abril: Programa Quinquenal do Governo de Mocambique, 2014 - 2019.** In. Maputo: Government of Mozambique; 2015.
33. MISAU: **Plano Estratégico do Sector da Saúde PESS 2014-2019.** In. Maputo: Ministry of Health; 2013.
34. MISAU: **Lista Nacional de Medicamentos Essenciais.** In. Maputo: Ministry of Health; 2010.
35. MISAU: **Estratégia Nacional de Promoção de Saúde.** In. Maputo: Ministry of Health; 2010.
36. WHO: **World Malaria Report 2019.** In. Geneva: world Health Organization; 2019.
37. WHO: **World Tuberculosis Report 2018.** In. Geneva: world Health Organization; 2018.
38. MISAU: **Survey of immunization, malaria and HIV/AIDS indicators in Mozambique -IMASIDA, 2015.** In. Maputo: Ministry of Health; 2018.
39. WHO: **'Best buys' and other recommended interventions for the prevention and control of noncommunicable diseases.** In. Geneva: World Health Organization; 2017.

40. Direcção-Geral da Saúde: **Plano Nacional de Prevenção e Controlo das Doenças Oncológicas Vol. 2010, Orientações Programáticas**. In. Maputo: Ministry of Health; 2017.
41. Conselho Nacional do Combate ao HIV/SIDA: **Plano Estratégico Nacional de Resposta ao HIV e SIDA 2015 – 2019** In. Maputo: National HIV/AIDS Council; 2015.
42. MISAU: **Plano Estratégico da Malária 2012-2016**. In. Maputo: Ministry of Health; 2012.
43. Damasceno A: **Normas para o Diagnóstico, Tratamento e Controlo da Hipertensão Arterial e Outros Factores de Risco Cardiovasculares 1st ed.** . In. Maputo: Ministry of Health; 2011.
44. Tiago A, Fernandes A, Caupers P: **Módulo de Formação em Diabetes: Guião de facilitadores**. In. Maputo: Associação Moçambicana dos Diabéticos; 2017.
45. Silva-Matos C, Beran D: **Non-communicable diseases in Mozambique: risk factors, burden, response and outcomes to date**. *Global Health* 2012, **8**:37.
46. Damasceno A, Gomes J, Azevedo A, Carrilho C, Lobo V, Lopes H, Madede T, Pravinrai P, Silva-Matos C, Jalla S *et al*: **An epidemiological study of stroke hospitalizations in Maputo, Mozambique: a high burden of disease in a resource-poor country**. *Stroke* 2010, **41**(11):2463-2469.
47. Silva V, Padrao P, Novela C, Damasceno A, Pinho O, Moreira P, Lunet N: **Sodium content of bread from bakeries and traditional markets in Maputo, Mozambique**. *Public Health Nutr* 2015, **18**(4):610-614.
48. Gonçalves C, Mavimbe J, Nhachengo D, Cuamba N: **Moçambique contas nacionais de saúde**. In. Maputo: Ministry of Health; 2012.
49. Heller O, Somerville C, Suggs LS, Lachat S, Piper J, Aya Pastrana N, Correia JC, Miranda JJ, Beran D: **The process of prioritization of non-communicable diseases in the global health policy arena**. *Health Policy Plan* 2019, **34**(5):370-383.
50. Shawar YR, Shiffman J: **Generation of global political priority for early childhood development: the challenges of framing and governance**. *Lancet* 2017, **389**(10064):119-124.
51. Berlan D: **Pneumonia's second wind? A case study of the global health network for childhood pneumonia**. *Health Policy Plan* 2016, **31** Suppl 1:i33-47.
52. Gneiting U: **From global agenda-setting to domestic implementation: successes and challenges of the global health network on tobacco control**. *Health Policy Plan* 2016, **31** Suppl 1:i74-86.
53. Quissell K, Walt G: **The challenge of sustaining effectiveness over time: the case of the global network to stop tuberculosis**. *Health Policy Plan* 2016, **31** Suppl 1:i17-32.
54. Schmitz HP: **The global health network on alcohol control: successes and limits of evidence-based advocacy**. *Health Policy Plan* 2016, **31** Suppl 1:i87-97.
55. Marten R, Smith RD: **State Support: A Prerequisite for Global Health Network Effectiveness Comment on "Four Challenges that Global Health Networks Face"**. *International journal of health policy and management* 2018, **7**(3):275-277.
56. Pfeiffer J, Gimbel S, Chilundo B, Gloyd S, Chapman R, Sherr K: **Austerity and the "sector-wide approach" to health: The Mozambique experience**. *Soc Sci Med* 2017, **187**:208-216.

57. Shiffman J: **Four Challenges That Global Health Networks Face.** *International journal of health policy and management* 2017, **6**(4):183-189.