**ORIGINAL RESEARCH**

**Use of Evidence in Policy Development by Policy Makers and Evidence Generators at the Federal Ministry of Health, Khartoum – Sudan**

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**ABSTRACT**

**Background:** Evidence informed policy is defined as an approach to decisions that ensure that decision making is informed by the best available research evidence. Evidence has a great impact on policy development and implementation especially in countries with scarce resources. Health systems research-evidence is not always communicated effectively or in a timely manner.

**Purpose:** The Aim of this study is to explore the use of evidence in policy development among directors of the Federal Ministry of Health (FMoH) and the factors affecting evidence-generating bodies in Khartoum, Sudan 2016.

**Materials and Methods:** This is a descriptive qualitative exploratory study involving two groups: Decision makers who were the heads of the directorates involved in policy development and evidence generating bodies: the Public Health Institute, Sudan Health Observatory and the Institute of Endemic Diseases. Using purposive sampling of 17 personnel, in depth interviews were conducted. Data analysis was done through thematic framework analysis combined with the deductive approach.

**Results:** Knowledge, attitude and skills of the policy makers interviewed showed that all the interviewees had good knowledge and positive attitude towards evidence even though obstacles, such as intervention from higher authorities, faced some decisions. This study identified many sources of evidence, such as research, reports, surveys, key informants, experts and stakeholders’ consensus; but obstacles arise when evidence is not timely available. Most of respondents generated evidence themselves and most departments collaborated with each other and with other entities to get evidence. However, working with others depended on personal relationship, otherwise the decision making process would be a lengthy process. It was noted that local universities had no big role in generating evidence. There is no evidence generated by the Research department in FMoH, and the respondents pointed out that there are many obstacles regarding the implementation of the policy, such as high turnover of the staff, lack of skilled staff and unavailability of funds.

**Conclusions:** There is a positive attitude towards the concept of evidence among decision makers. Many factors affect the use of evidence in policy and decision making in general. Joint mechanism should be developed to allow for the flow down of evidence between local researchers and universities and decision makers.

**Keywords:** Evidence, informed policy making, Evidenced based policy
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Introduction
What counts as evidence varies. It may be comprising, e.g., expert knowledge, published scientific research, stakeholder consultations, previous policy/program evaluations, the internet, outcome from consultations, costing of policy options, output from economic and statistical modeling\(^1,2\). Due to the broad meaning of evidence, its quality and credibility also varies. Systematic reviews are considered as being top end of evidence\(^3\). Health policy is defined according to World Health Organization as decisions, plans and actions that are undertaken to achieve specific health care goals within the society\(^4\). The policy making process consists of identification of issues, gathering information and evidence, formulation of policy, designing and then implementing the policy and finally monitoring and evaluation\(^2\). Formulation of a policy is affected by many factors such as information, interests, ideology and institution\(^2\). Evidence-informed policy (EIP) is defined as an approach to decisions that ensures decision-making is informed by the best available evidence\(^2,4,5\). To be used in policy, evidence should be objective and accurate, relevant, feasible, accessible to policy maker and credible. The policy makers may have difficulty in checking the quality of the evidence. Thus, they may rely on reputation of the researchers, which means that people around the decision maker and their values and judgment can also have an effect on policy\(^2\). Evidence-based policy (EBP) can have an even more significant impact in developing countries as it tends to be less established in developing countries than in developed ones, and therefore the potential for change is greater\(^2\).

Better utilization of evidence in policy and practice can help saving lives, reducing poverty and improving development performance in developing countries\(^2\). Use of evidence in public health policy has been investigated in Tanzania, Malawi, South Africa and Cameroon\(^2,3\). Most importantly, the capacity of policymakers to recognize the need for research and communicate this need to researchers is one of the drivers that underpin knowledge translation activities, especially the user-pull strategies\(^3\). Scientific research is not the key informant of policy but rather a part of the policy-making context influenced by many other factors such as local culture, resources, political situation, values and judgments\(^2\). Policy making process may be further influenced by political structures, relationships between national and sub-national levels, funding and international stakeholder agendas\(^2\). Research is thus not the main driver of policy, but rather current contextual realities, costs, logistics and people (clinicians, NGOs, funders) influence the policy where research plays just one part\(^3\). Research-based evidence is frequently perceived as unavailable, inaccessible, ill-timed or not applicable\(^3\). Thus, there is a lack of effective use of research evidence in policy-making which poses a major challenge. Evidence is needed to clarify what program or service to offer and cover, how to deliver the services and how to implement the changes\(^5\). Lack of effective evidence-informed policy process is a major challenge in low- and middle-income countries. According to Oxman et al.\(^1\) poorly-informed decision-making particularly in low- and middle-income countries is one of the reasons why services sometimes fail to reach those most in need, why health indicators become off-track and why many affected countries are unlikely to be able to meet the health millennium development goals\(^1,4,5\).

In Sudan, policy decision and policy making are usually influenced by many factors other than evidence. However, strengthening the use of research evidence is a critical challenge that holds the promise of leading significant health change based on sound policies. Health systems research evidence is not always communicated effectively or in a timely manner, this is a problem related to...
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researchers. On the other hand, health system managers, policy, and decision makers do not always have the skills, tools, and capacity to find and use research evidence. Studying the use of evidence in policy making process is quite important in a country with limited resources such as Sudan.

The aim of this study was to study the use of evidence in policy development among policy makers, to explore factors affecting this process and to identify the channels that link decision makers and researchers.

Materials and Methods:
This is a descriptive qualitative exploratory study conducted in FMOH and institute of endemic diseases university of Khartoum. Sample size was 17 respondents and collected purposively as follows: 14 director general and directors from federal ministry of health and the 3 other respondents were from Sudan Heath Observatory, Federal Research Directorate, and Institute of Endemic Diseases University of Khartoum.

Study population were two groups: Decision makers were defined as directors general and directors of departments working in FMOH. Researchers (Evidence Generators) were defined as experts working in evidence generation and dissemination process. Some of the respondents were both decision makers and evidence generators. Data was collected through In-depth interviews using voice recorders and note’s taking conducted between 4th-19th July 2016 in the participants working environment. Session length is 20-45 minutes. Data was analyzed using Framework Analysis combined with the deductive approach that structured the predetermined framework to analyze the data. Ethical approval was obtained in 2016 from the Department of Community Medicine, University of Khartoum and a written informed consent were given to each participant.

Data Analysis
Data Analysis was done depending on the potential themes explored from the study

Results:
The Decision makers are highly professional with high degree in community medicine and public health, majority of the respondents were males, majority of them were doctors and surprisingly there was no nurses among the decision makers. Regarding their degrees all of them has postgraduate degree but most of them held master degree. Most of the interviewed has worked in FMOH for more than 10 years. Most of the interviewee had training about the use of evidence and policy development. Majority has worked collaborated with international NGOs in policy related aspects and when working with them they had policy guidance. Based on the informants’ background they were assumed to understand the importance of evidence and how to generate evidence and assess it.

The qualifications of decision makers have an important role in the knowledge utilization. Our results indicate that policy makers utilize different methods to collate evidence in the health system based on results of research and experience. The skills of the policy makers and facilities available are also important components for the decision making. In the present study, we found that most of the respondents mentioned research as the main source of evidences both local and international research were used in policy development. The informants were seemingly committed to use evidence and expressed that use of evidence is important for their decision making work: “We use evidence and we are committed towards using it” (head of the department).

We found that all of the respondents had used evidence in the last six months and that it was
part of the FMOH system and many of them referred to that. One of the respondents said:

“If the policy is not based on sound evidence it will not pass, it will be rejected.”

Thematic approach:

Perceptions on the concept of evidence

All of the decision makers interviewed seemed to have a clear knowledge about the evidence and its importance. Some of the interviewees expressed that things that are not based on evidence are delusions or dreams.

“Evidence is an art, the art of asking questions”.

The generation of evidence took different forms and methods depending on the situation. As one of the interviewees mentioned:

“To generate evidence first you have to determine the need for evidence and then advocate for it, and then convince others to practice it. When generating evidence you should be a little bit relaxed.” (Head of a department)

Majority of the interviewees mentioned that evidence is generated by research. Minority of them mentioned key informants as a source of evidence. Other methods mentioned by respondents for generation of evidence included expertise and stakeholder consensus meetings, surveys, reports, desk reviews and documents, successful stories, historical logical structure and think tanks.

“Sudan has been working in trial and error mood for long time. Moreover, there is no institutional memory so if we documented these stories weather successful or not many resources will be saved”.

The informants expressed that they feel it problematic when the evidence (e.g. research) they were supposed to use is few which made the quality of evidence low. In this case, they had to approach different stakeholders and to use other kind of evidence such as Grey literature in order to make an informed decision. They also mentioned the importance of stakeholders’ and researchers’ opinion in appraisal of evidence and adapting it to the local context. Further, they mentioned local context, the relevance of evidence and ethics as factors that mattered when deciding whether to use the available evidence or not.

Frequency and purpose of using evidence

Majority of the policymakers reported that they used evidence for every day work. Others used it to formulate new plans, policies, projects or strategies. Majority used evidence for all stages of policy making, but some external factors, e.g. political preferences, that the informants perceived had affected their use of evidence. All of the policy makers mentioned that evidence was used as part of ministry work and not only for funding control programs such as global fund for HIV/Aids and malaria control.

“…we seek funds to make evidence because we are not convinced with non-evidenced actions”. (Head of PHI)

“The evidence could help in better production and performance.” (Key person in department of development and projects)

“Evidence decrease conflict of interest, ideas dominance and funder’s preferences”. (Heads of research, health information and evidence departments)

Minority mentioned the presence of policy interference that could affect the use of evidence.

Anyone in the field of public health is using evidence and then he deepens accordingly. Sometimes you need an
evidence from the local context, sometimes you need to ask, acquire and appraise to see if it is suitable for local context or not. Because the evidence may be strong but not applicable to the local context, so you may use weaker but more relevant evidence”. (Heads of research, health information and evidence departments)

Policy is not about only writing it, it’s about implementation… if the policy is well written then the implementation will be easy. (Head of the policy unit)

The practice of use of evidence

The informants tell about the low quality of the data and the pressure to make decision based on poor or non-existent evidence.

Chloroquine was on Sudanese market for more than 40 years and there was a big conviction among doctors and population that it is effective, that is why it was abused in a huge manner. I think if we hadn’t had strong evidence we couldn’t have changed the practice. The decision was built on evidence, but the hardest thing was to stop the Chloroquine in the market. If the decision wasn’t built on strong evidence it would not go further. (Head of planning and international health)

The following quotes indicate that professionals were aware what it is necessary to use evidence but the practice did not follow the guidelines given in the evidence. Thus their role as decision makers would be to advocate the use of evidence of effectiveness in practices that aim at saving lives.

To change the trend of malaria vector control of the people from spraying of insecticides which had shown not to be effective to practicing long residual spraying and using mosquito nets that was based on evidence. (Head of planning and international health)

The following narrative tells that although there is a huge amount of information it is not used to formulate polices:

In health information department we revisited the recording system in health facilities and we found that we were collecting a huge amount of data that is not turned into information and is not analyzed. The evidence says that if you want to improve the information decrease the load on data collectors so they can collect a better data. Accordingly, we removed the big amount of data that we felt we don’t need at this stage or that we cannot use it at this stage and that we have to waive. At the beginning, there was objection as they used to collect all these data, but we showed them that this data never analyzed or turned into information. According to staff impression there is improvement but we didn’t make evaluation study yet. (Head of research, health information and evidence department)

In terms of practices of evidence use this narratives tell us that when there is need to find why the outcome of the policy is poor, managers usually look for the cause.

In maternal health we assessed midwifery training which was based on evidence and we found lots of gaps from international standards so we revisited the midwifery curriculum and training based on
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that assessment. (Head of human resources directorate)

The following quote indicate that the change in health system should be executed according to the needs of the local community:

Community health worker training has stopped with the beginning of higher education revolution. We did the health system survey and we found that large number of localities has no access to health services as doctors and medical assistants don’t go there, based on that survey we restarted community health workers training. (Head of human resources directorate)

Situation analysis connected to the evidence had to proceed judgment or categorization of the data before a decision was made:

To retain doctors we divided the states into categories according to the ministerial council division which is based on infrastructure and social composition of the state. In one state which we considered A, we found that there is a weak rate of for doctors who go there, a rapid analysis was done and they we found that the medical infrastructure at that state is worse than the state that we considered low and there is no possibility of private practice so it is unattractive. Based on that we increased the rate of doctors for that state. (Head of human resources directorate)

Family medicine training became in-service training based on evidence. (Head of planning and international health)

Majority of the respondents mentioned research databases as a source of evidence. Some mentioned key informants and experts. Other sources of evidence mentioned were: reports, surveys, surveillance system, old documents, indicators, meetings, seminars and workshops. Majority mentioned that they use evidence according to need and availability and that there is no one preferred source

“In critical times that we have no time to make analysis, we take the most strong evidence... but if what is available is weak then we take it as it is”. (Head of epidemiology department)

One of the respondents pointed out an important point regarding the reliability of the evidence. According to the interviewers it could be that some of the employees may fake the reports in order to get the work done, which will lead to building policies on that fake data.

“I don’t rely on reports unless I see them myself. (Head/department)

Regarding access to evidence the majority of the policy makers mentioned difficulties to access evidence as many journals are not free of charge. Evidence felt to be scattered among different places, it took time to find it, there was no portal to access reliable evidence in one spot and the local evidence was identified through snow balling (one piece of evidence lead to another piece, e.g. by using the reference lists) and through personal communication.

Some respondents mentioned the presence of a system for using of evidence, staff motivation and trained cadre, experts, and the internet as important factors affecting the use of evidence. Other encouraging factors mentioned by respondents included training and workshops, availability of evidence, availability of funds, higher authorities commitment, and stakeholder support. The majority of the respondents reported lack of

Sources, accessibility and other factors affecting the use of evidence
skilled staff, time constraints and poor accessibility to evidence as barriers for evidence use. Some of them mentioned fund problems and negative attitudes of some people towards evidences discouraging factors for evidence use. Power relations and leadership were also mentioned to be influencing the use of evidence:

*There is a power problem: some powerful departments do not follow the standard guidelines and don’t collaborate with specialized units because they have the power and resources. Another point is that there is also leadership problems there are two departments that are dealing with policy making and the roles of each of them is not quite clear. There is big resistance to the policy research because some think it is not research.* (Head of Public Health Institute)

It was a positive discovery that all of the policy makers mentioned evidence use as part of MOH system and not only for the sake of funded programs although as said by one of the respondents that “policy is not about writing - it’s about implementation” so the challenge will be how to apply these policies in the changing circumstances and involving others sectors to implement it.

In term of generation of evidence: Some of the policy makers developed research on their own. The majority of them collaborated with local bodies to generate evidence. Some had collaboration with international organizations. The minority had collaboration with international universities. Minority mentioned that local universities have no big role in the generation of evidence and mentioned that policy research is not of their interest.

*Not much evidence is generated from local resources if any.* (Head of epidemiology department)

Regarding mechanisms and challenges affecting collaboration: Majority of the respondents mentioned that they collaborate through coordinators, committees, and personal contacts. Only a few departments have collaboration in policy making and it was only with international bodies. Some obstacles in the policy implementation included lack of funds and competition for funding. Minority of the respondents mentioned high turnover of trained cadre as an obstacles barrier to evidence use. Other obstacles mentioned by policy makers included: No clear roles and responsibilities, poor governance, various administrative issues such as too much administrative tasks and regulations, conflicts of interest, lack of transparency, weak links with research departments.

*Partners should have a shared vision and should coordinate their work towards it to avoid duplication. Unfortunately, the general practice is that anyone is working individually and there is competition for fund whether governmental or from organizations, anyone wants to get the biggest part of the fund to reach his own goal.* (Head of research, health information and evidence department)

**Evidence generation and dissemination**

Evidence generation and dissemination is only done by the institute of endemic disease, while the research department’s role is governance, coordination and training. The Sudan Health Observatory is currently the disseminating body. The evidence is generated by developing proposals based on a strategic plan which is not always from the strategic plan of the FMOH. The academic institute gives the MOH readymade outcome.

*Obstacles facing generation is mainly funds as there is no separate budget for research.* (Head of institute of endemic diseases)

Also, according to the informants, as there is no system for acquiring evidence, the evidence is aggregated with persons and not
documented. I.e., when someone starts a certain project, he will acquire all the evidence and establish contacts related to that project. However, when s/he leaves the department, he takes all that information with him. Another challenge affecting the use of evidence was the time constraint: There was no time, the informants claimed, to acquire or wait for evidence as there was time pressure in making the decision and act upon that. As mentioned by one of the respondents

*The problem of people here is that they tend to rush things.*

Majority of the respondents mentioned that dissemination of research results most often takes place through websites. Some of the informants told that dissemination is done through conferences and publications. Obstacles that face dissemination as mentioned by respondents were deficit of funds, lack of dissemination policy, poor logistics, no existence of knowledge sharing culture, poor coordination between researcher and policy makers, no Website maintenance in place, no feedback for researcher about production of evidence unless through direct communication e.g. workshops or conferences.

![Figure 1: Shows the Challenges of evidence](image-url)
Discussion

Policy development has many factors that affect it other than evidence. However, strengthening the use of available knowledge in policy making would have a huge impact on the development and implementation of policies and hence the health systems.

In this study the interviewed policy makers that used to evaluate and rate evidence, depending on the types of evidence by different methods. Some used highly technical procedures such as appraisal of the contents whereas others remained not checking the quality of the content. This finding is consistent with another study conducted in Nigeria, showing that recognition of the value of different evidence types, combined with structures for generating and using evidence, are likely to enhance evidence-informed health policy development. Oxman emphasized that skills for searching and appraising evidence are crucial for policy makers in order to develop sound policies that fit in the local context. Positive attitudes of the policy makers towards evidence is regarded as critical facilitator for use of evidence as suggested by a review about barriers and facilitations. In the present study we found that although policymakers had positive attitudes regarding the use of evidence, they did not always properly utilize evidence in their policy making process.

The informants of this study used many sources of evidence such as: scientific research, project reports and other Grey literature, surveys, key informants, experts and other external stakeholders, consensus meetings and others. The habit of using a whole range of different sources of evidence in policy making was also identified in a study in Nigeria and in South Africa and Cameron. Identifying these sources and types of information are a crucial step in describing and ultimately influencing the policy process as mentioned by a systematic review about the facilitators and barriers for use of evidence.

Our results confirmed that research is not the main drive for policymaking and this is also consistent with a study by Naude et al. Regarding the locally available evidence: sometimes it seemed not to be accessible at the time of demand (e.g., in a decision making situation) due to the following reasons: Evidence was experienced to be scattered, documentation of projects were not existing in written format, there were time constraints, and the evidence was not always free of charge. These findings are consistent with barriers mentioned by Oliver et al, Jbilou et al and van de Goor et al. Factors that hindered the informants to use of evidence at the time of demand included lack of availability of research, lack of relevant research, having no time or opportunity to use research evidence, policymakers’ and other users were skilled in research methods, and costs. Moreover, this is consistent with a study by Naude et al stating that research evidence is frequently perceived as unavailable, ill-timed and not applicable.

Despite these helpful factors the health system is under constant pressure such as economic constraints, ecological changes, political situations, and socio-demographic challenges with increasing turnover of skilled staff our health system is starting to suffer. It was reported in a study that it is difficult to use evidence under the pressure of stakeholders, economic factors and professionals. Of the negative factors, the respondents mentioned the reluctant attitudes of the employees. To overcome this, the respondents suggested more training and advocacy and to have clear flow of information within the local health system. This is consistent with literature about organizational and individual capacity to handle evidence-based system which can be facilitated by infrastructure and clear roles such as strong leadership, supportive work culture and financial commitment. As some
respondents mentioned that advocacy is an important factor before establishing the policy. An important issue that was raised was the power problems, which the respondents suggested to be solved by clarifying roles, responsibilities of researchers and policy makers and pathways of policy generation. As mentioned by some respondents, the political influence has a major role in policy development, which is consistent with a research from Nigeria that pointed to political manipulation and ambition seem to be among the strongest determinants of factors influencing policy development processes.

Regarding the link between evidence, researchers and policymakers there seemed to be collaboration between all respondents interviewed and researchers as some are doing researches by themselves and others are collaborating with other entities from the FMOH or outside. Unlike a result of a study done in Eastern Mediterranean Regions, which showed that the researchers and policy makers rarely collaborate. It is unfortunate that local universities have no major role in the generation of research evidences. Universities could have a bigger role if their priorities meet with FMOH one in form of staff and fund. It was mentioned in a study that collaboration is absent due to different priorities of the researchers than policymakers which was also confirmed by our study as well. Facilitators that help to strengthen or establish this collaboration includes policy makers’ desire and relationships with collaborators also training and institutional recognition beside provision of the funds. The major mechanism of collaboration that was used is through coordinators and committees. However, few departments were reported to have coordination in the policy making process. This reflects how randomly things could go as it was mentioned that committees’ meetings could delay the process of gathering evidence especially when conflicted with administrative processes.

To influence policy, researchers should have a good understanding of the policy-making environment as mentioned by a study done in Cameroon and South Africa. No local funds allocated specifically for researches to generate evidence. This is a problem noted with many interviewees throughout the study. And this is because research is expensive as mentioned in one study. To do research targeting generation of evidence they have to depend on international funds which may put them under pressure of lack of neutrality and being forced to achieve others objectives, which is happening in Cameroon as the funders are the main players in policy-developing process. Lack of knowledge sharing culture is another factor that affects the generation and dissemination of evidence and this will affect the health system as it not enough to only generate good quality of evidence if it is not going to have an impact in people life.

Many approaches can be used to link researchers with policy makers such as pushing by researchers and users pull efforts, exchange and integrated efforts. Use of exchange and integrated efforts could solve funding and technical problems as policy makers provide them. Although there are efforts to disseminate the information, the absence of clear dissemination policy and plans is a drawback. Lack of regular meetings for research that link between researchers and decision makers is also a hindering factor as there may be a lot of useful researchers excluded from influencing decisions.

Conclusions

There is good knowledge and attitudes towards the use of evidence in policy development. Although there is a system for use of evidence and many positive factors that are encouraging the use of evidence but there are discouraging factors in evidence generation. Collaboration between universities and ministry of health is weak and not systematic. Mechanism of collaboration is mostly through, committees and personal contacts. There was no clear role
of researchers and policy makers. Competition for the same source of fund is the major challenge that affected collaboration.

Recommendation:
Reform policies to improve the mechanism of collaboration between the evidence generators, academia and the policy makers.

Some evidence generation facilities were available but more efforts are needed to support evidence dissemination.

Further quantitative researches are recommended

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