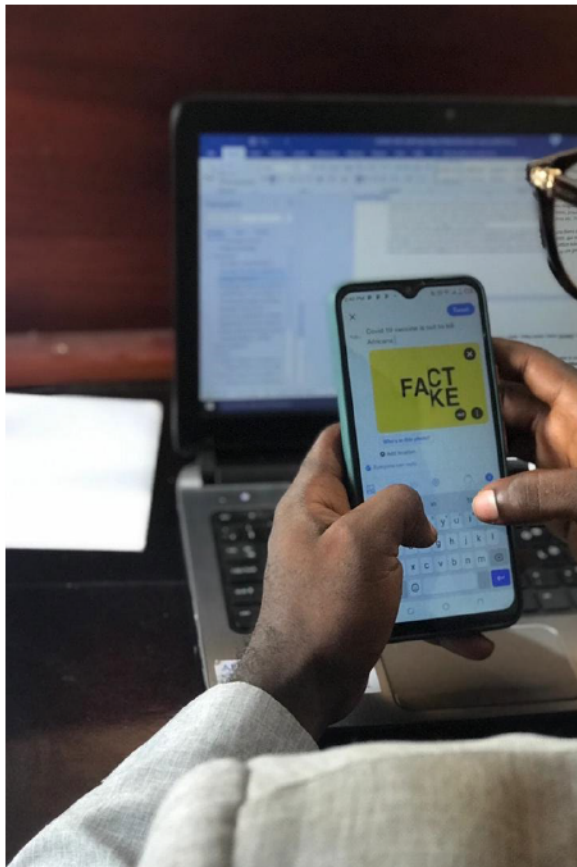# Impact of Misinformation and Disinformation on the Use of Research Evidence in Africa

Disinfodemic and Policy in an African Context

IMPACT OF MISINFORMATION AND DISINFORMATION ON THE USE OF RESEARCH EVIDENCE IN AFRICA

Disinfodemic and Policy in an African Context

ABSTRACT

The 21 century reveals itself with a damaging information crisis, challenging and undermining efforts made to increase the uptake of scientific research evidence in both policy and practice. We examine the impact of mis/disinformation on the use of research evidence in public policy decision making in West and Central Africa. We used the JBI Scoping Review and Prevalence/Incidence Review approaches to synthesize best available evidence. We used a DELPHI survey to gather experiences of policy makers, practitioner, and citizens on mis/disinformation and its impact. The results of this research revealed various cases, actors, origin, impact, and mitigation strategies of mis/disinformation on the use of research evidence. We conclude that the severity of COVID-19 as a global pandemic has revealed the danger of mis/disinformation with a considerable number of reported studies from west and central Africa demonstrating significant negative impact on evidence informed policymaking and women empowerment.

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ACKNOWLEDGEMENT

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ABBREVIATIONS AND ACRONYMS

EBASE Africa	Effective Basic Services Africa
EBHC	Evidence-Based Healthcare
EIDM	Evidence-Informed Decision Making
FREQ	Frequency
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IDRC	International Development Research Centre
IRB	Institutional Review Board
KIIs	Key Informant Interview
SGBV	Sexual and gender-based violence
SSA	Sub-Saharan Africa
UN	United Nations
WHO	World Health Organization

Contents

LIST OF FIGURES

LIST OF TABLES

Introduction and Methodology

Introduction

Background

The 21 century reveals itself with a damaging information crisis challenging and undermining efforts made to increase the uptake of scientific research evidence in both policy and practice. While allot have been done by scientist to solve global challenges (like COVID 19, climate change, gender inequality) a minute of likes and clicks of a misconception comes and render these efforts futile. This information crisis reveals itself in the form of misinformation, disinformation, fake news and disinfodemic. Misinformation is referred to False information spread regardless of the intention to mislead. On the other hand, disinformation is defined as deliberately misleading or spreading wrong information. Fake news on the other side is purposely fabricated information that mimics form of mainstream news while disinfodemic can be described as the falsehoods fueling a pandemic and its impacts because of the huge 'viral load' of potentially deadly disinformation that is described by the UN Secretary General as a "poison", and humanity's other "enemy" (Bontcheva 2020).

The outbreak of COVID 19 has clearly brought to the spotlight the impact mis/disinformation could have not just on the uptake of research evidence in decision making, but also on how acting on the wrong information can have adverse effect on health and lead to death. The WHO 2020 report estimates that in the first 3 months of 2020, nearly 6 000 people around the globe were hospitalized because of coronavirus misinformation, with at least 800 people who may have died due to misinformation related to COVID-19 while 60 people had developed complete blindness after drinking methanol as a cure for COVID-19 (Organisation April 2021).

In west and central Africa reports suggest that the impact of mis/disinformation on the uptake of research evidence in decision making could be more devastating due to persisting conflict, illiteracy, limited research, limited communication capacity, religion and culture.

The Corona Virus Disease (COVID-19) has revealed the severity of disinfodemic in a time of health crises. It was officially declared a global pandemic on the 11th of March 2020. COVID-19 poses a grave risk to progress made in attainment of the sustainable development goals (SDG) especially those related to health, education, gender equality, and climate change (W. L. al May 2020). Meanwhile COVID-19 has had a global impact, Sub Saharan Africa has known several health threats that have similar impacts like Ebola, Cholera, and Lassa diseases (Ogunleye September 2020). This situation has been further worsened by public mistrust in existing political structures (Moudo 2019). In addition, the era of fake news and alternative truths have further created a global situation whereby a deluge of information available on the internet easily trickles down to vulnerable populations and affects public policy decision making and uptake of public policies. The COVID-19 pandemic has further challenged a fractured system for developing guidance for policy and practice (Munn December 2020).

The course of action taken by African governments in response to COVID-19 pandemic and similar emergencies usually tend to be restrictive, regulatory, or facilitatory. Due to internal

and external peculiarities in the SSA political systems, information and research evidence. Reaching public policy makers could be received with trust or distrust and this therefore affects public policy designs. Although rumors and fake news have played a key role in the development of interventions in public policies, the role played in the COVID-19 pandemic has been sensational.

Public policy decision making around the pandemic also has an impact on other existing threats like malaria, HIV, educational attainment, weak financial systems, and other nascent sectors that were indicating promising progress like agriculture, economics etc.

Civil societies and research centers in Africa have used various approaches to encourage the use of research evidence in policy and practice (Emmanuel Berinyuy Kamga September 2020) and follow up interventions to promote uptake of evidence by citizens

Figure 1: Signing Ceremony between the Secretary of state of the Ministry of Basic Education of Cameroon and eBASE Africa

(Carneiro Aughust 2020). At eBASE Africa evidence portal have been used to promote the uptake of research evidence by policy makers, practitioners and citizens, as a continuum of evidence mobilization within the ecosystem of knowledge users. This can be found on health evidence portal at www.ebmafrica.net and on education evidence portal at www.ebaselearning.org

However, before the outbreak of COVID 19, there have been existing disinformation and misinformation surrounding other issues (such as; women empowerment, education of the girl child, advocacy against early marriage and violence against women, mother and child health, climate change and food security) which had a great negative impact on the uptake of research evidence in decision making by policy makers. While the impact of rumors on COVID 19 decision making is globally felt, in bringing to light the great impact disinformation and misinformation can have on public policy decision making, note should be taken of the impact the later might have on other vulnerable sectors.

In order to make effective decisions and policies, governments need the capacity to critically appraise research evidence and online information, have access to research evidence, capacity to translate and use research evidence, and capacity to evaluate the impact of public policies in a trustworthy political atmosphere (L. P. al February 2012). Developing contextually relevant

approaches to address evidence into policy processes will greatly improve the effectiveness of public policies (Okwen 2020).

Research Objectives

To assess the impact of disinformation and misinformation on the use of research evidence in public policy decision making

Specific objectives

1. To shed light on the genesis of rumours

2. To shed light on their propagation mechanism

3. To develop recommendations in the form of approaches to mitigate the negative effect of disinformation and misinformation on public policy decision making and enhance the uptake of research evidence by policy makers

Research Questions

Systematic Review Questions

Scoping Review Question: What is the landscape of mis/disinformation in west and central Africa?

Cases Review Question:

Q1: What are the cases of disinformation affecting decision making in West and Central Africa?
Q2: What are the cases of misinformation affecting decision making in West and Central Africa?

Qualitative Review Questions

In exploring the impact of disinformation and misinformation on the use of research evidence in public policy decision making, while taking into consideration the inclusion of female Gender, people with disabilities, indigenous population, our focus was to answer the following questions?

1. What are the experiences of policy makers, practitioners and citizens with decision making in an era of disinformation and misinformation?
2. What are their recommended solutions to mitigate the impact of mis/disinformation affecting their decision-making process and increase the uptake of research evidence in a time of dis/misinformation?

Methods

Sampling: Data and Countries

Review of Existing Projects

The objective of this review was to explore existing IDRC and other development research projects that have developed evidence for decision making. We explored if research evidence was used in policy making following research and if mis/disinformation affected the use of such evidence.

Setting

Our research focused on policy makers from West and Central African countries

Selection of Countries and Projects for Mis/Disinformation Study

In order to ensure equal representation of countries and projects in the study, we used cardinal and sub-cardinal criteria in selecting countries for the study. The study used these criteria to evaluate minimum number of countries and minimum number of projects needed. Our considerations were a selection that meets all cardinal criteria and a mix of sub-cardinal criteria.

Cardinal Criteria

1. Countries: must be adequate representation of West and Central African countries with a spread across the region
2. Language: there must be adequate representation of French and English-speaking countries
3. Status of project: must be completed or has presented preliminary results that can be used for policy making
4. Funder: equal number of IDRC and non-IDRC funded projects

Sub-Cardinal Criteria

1. Sectors of interest for mis/disinformation: COVID-19, fight against early marriage, education of the girl child, women empowerment, GBV, climate change, and food security, (selected based on priority of IDRC stakeholders)
2. Participants and beneficiaries: women, girls (based on IDRC stakeholders' prioritization) and people with disability, indigenous populations (based on objectives for inclusion of other disadvantaged groups)
3. GDP
4. Conflict and non-conflict

IDRC Projects

Based on the above criteria 31 IDRC projects were selected from Cameroon, Nigeria, Senegal.

Other Projects

We handpicked other research in development projects in these three (3) countries for which we could easily reach the authors and evidence uptake stakeholders therein.

Data Collection and Synthesis

Systematic Review

We used two systematic review approaches, these were the scoping review and the prevalence/incidence review approaches following the Joanna Briggs Institute approaches.

Scoping Review

The objective of this scoping review was to understand the landscape of misinformation and disinformation affecting the use of research evidence in public policy decision making in West and Central Africa.

Prevalence/Incidence Review

This review was to identify cases of misinformation and disinformation affecting the use of research evidence in decision making.

We conducted a review of cases of misinformation and disinformation affecting the use of research evidence in decision making, the mechanisms of misinformation and disinformation, enablers, perpetrators, strategies used to mitigate misinformation and disinformation, existing evidence on factors informing public policies in West and Central Africa including the impact of disinformation and misinformation on use of research evidence. This scoping review consisted of case studies of selected projects of the existing literature on the impact of disinformation and misinformation on the use of research evidence in public policy decision making in West and Central Africa. Some of the questions this review answered are; the sources of rumors, their propagating mechanism, its impact on policy decision making and mitigating strategies of disinformation and misinformation.

Review Questions

1) What is the landscape of mis/disinformation impact on the use of research evidence in public policy decision making? (Scoping Review)
2) What are the cases of disinformation affecting decision making in West and Central Africa? (Prevalence/Incidence Review)
3) What is the prevalence and incidence of misinformation and disinformation among policymakers and citizens in West and Central Africa? (Prevalence/Incidence Review)

Search Strategy

Condition– Cases of misinformation/disinformation

Context – West and central Africa

Population – Policy makers, Practitioners, Citizens

Misinformation		
Condition	Context	Population

Cases of:	West and central Africa	Policy makers
misinformation	Sub-Saharan Africa	Practitioners
disinformation	Africa	Citizens
false information	African countries	Decision-makers
false rumor	Developing countries	Politicians
fake news	Low-and middle-income	Community
misleading information	countries	People
deception		Society
propaganda		Public
		inhabitants

Searched Data base

- ➢ IDRC
- ➢ WHO
- ➢ PubMed
- ➢ 3ie
- ➢ Google scholar
- ➢ Cochrane
- ➢ Taylor and Francis
- ➢ ProQuest
- ➢ Campbell Collaboration
- ➢ EBSCO Host
- ➢ African Journals Online

Exclusion Criteria

We excluded all cases of misinformation:

1) Not reporting from a West and Central African Country
2) Not reporting on COVD-19 pandemic, education of the girl child, climate change and food security, mother and child health, women empowerment, advocacy against early marriage and sexual violence

The screening of studies and extraction of data was carried out by two independent authors with one senior researcher to supervise the work.

Searches were done using Boolean operators developed from the above research questions. Sample from:

ProQuest (noft(Cases) AND noft(misinformation OR disinformation OR " false information" OR rumor OR "fake news" OR "misleading information" OR deception OR propaganda) AND noft("West and central Africa" OR "Sub-Saharan Africa" OR Africa OR "African countries" OR "Developing countries" OR "Low-and middle-income countries") AND noft("Policy makers" OR Practitioner* OR Citizen* OR "Decision-makers" OR Politicians OR "Community members" OR Society OR Public OR inhabitant)

PubMed (((cases) AND (misinformation OR disinformation OR " false information" OR rumor OR "fake news" OR "misleading information" OR deception OR propaganda)) AND ("West andcentral Africa" OR "Sub-Saharan Africa" OR Africa OR "African countries" OR "Developing countries" OR "Low-and middle-income countries")) AND ("Policy makers" OR Practitioner* OR Citizen* OR "Decision-makers" OR Politicians OR "Community members" OR Society OR Public OR inhabitants)

Web of Science (((TS=(cases)) AND TS=(misinformation OR disinformation OR " false information" OR rumor OR "fake news" OR "misleading information" OR deception OR propaganda)) AND TS=("West and central Africa" OR "Sub-Saharan Africa" OR Africa OR "African countries" OR "Developing countries" OR "Low-and middle-income countries")) AND TS=("Policy makers" OR Practitioner* OR Citizen* OR "Decision-makers" OR Politicians OR "Community members" OR Society OR Public OR inhabitants)

From the above databases we recorded a total hit of 348,684 studies, after removal of duplicates, 398 were included based on title, 81 were included for abstract screening, 56 were included for full text screening and 36 studies in total were retain. Eligible full texts were extracted using a pre-piloted data extraction form (see annex 1). Data was finally aggregated into a master sheet for meta-analysis and meta-aggregation.
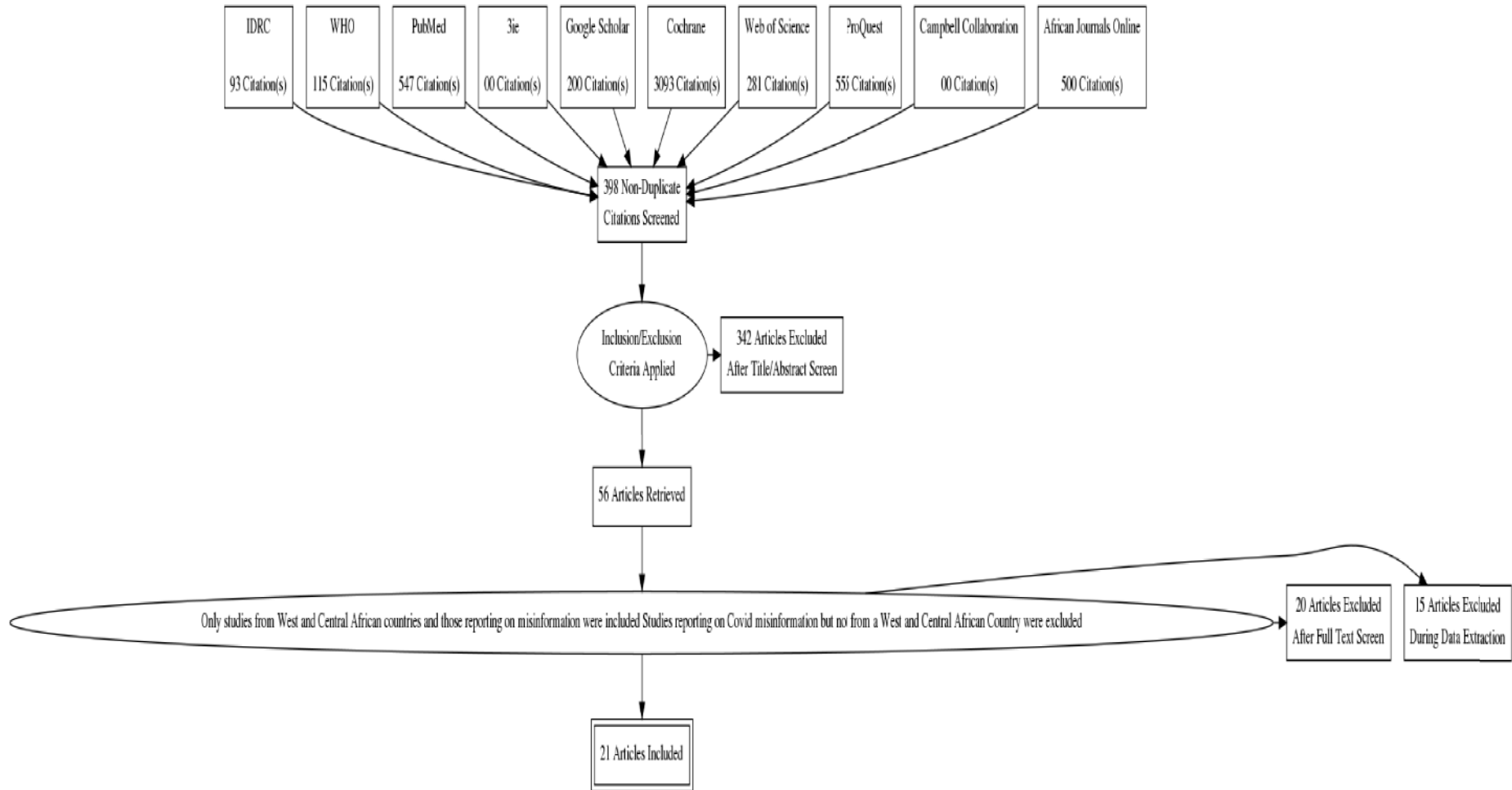
Figure 2: PRISMA Flow Diagram

Delphi Survey

The objective of this survey was to gather the experiences of the stakeholders, identify sources of information barriers and challenges affecting research evidence in decision making and determinant of success. The survey was done in two stages:

Stage 1: Gathering information on experiences (barriers, determinants of success, and coping strategies) through Informant Interviews (KIIs). Identified stakeholders were approached via email from research team backed by IDRC. The response rate was poor with only 09 out of 40 stakeholders identified being able to join. Data collection was done using a peer reviewed and pre-piloted discussion guides on zoom. We recorded the sessions, transcribed, and coded using Microsoft Word. We extracted data on Microsoft Excel and Maxqda. We used findings from interviews (KIIs) to identify emerging themes and strategies for mitigation. There was a poor response rate

Stage 2: We identified emerging themes and strategies to develop a list of strategies to be prioritized by stakeholders. (ongoing)

Ethical consideration

Ethical clearance was obtained from the regional delegation of public health in Bamenda IRB and the eBASE IRB.

We diligently adhere to IDRC's policy in carrying out the project in accordance with high ethical standard. All research was conducted in compliance with Helsinki Declaration. Consent was obtained from all individuals we interviewed: No individual was a Subject of this Research unless s/he freely gave s/he consent with no pressure nor inducement of any kind on our part to encourage the individual to become subject of this research.

And before becoming a subject of research, s/he was notified of the aims, methods, anticipated benefits and potential hazards of the research, her/his right to abstain from participation in the research and her/his right to terminate at any time her/his participation, and the confidential nature of her/his replies and any limits on such confidentiality.

Additional Data Collection

Because of the peculiarity of Covid 19, a typical approach was used to collect data on Twitter and reaching out to friends for cases of misinformation in Cameroon with a focus on COVID 19 using WhatsApp. Also, we worked with Africa-Canada Artificial Intelligence and Data Innovation Consortium to gather tweets on cases of mis/disinformation using the following search terms

(covid OR pandemic OR covid19 OR "covid-19" OR "covid_19" OR #covid19 OR #covid_19 OR "#covid-19" OR "sars-cov-2" OR corona OR coronavirus OR #coronavirus OR #coronavirus2 OR #corona OR ncov OR hcov) AND (afofo OR hydroxychloroquine OR "samuel kleda" OR kleda OR Montagnier OR infertility OR "cannot survive in Africa" OR "can't survive in africa" OR alkaline OR alcohol OR "hot water" OR steam OR "vernon coleman" OR vernon OR coleman OR fraud OR "stay away from the vaccine" OR 5G OR "mark of the beast" OR "bill gates" OR aspirin OR rfid OR microchip OR ginger6 OR "kongo bololo" OR coroniser OR "hot temperature" OR cvo

OR "covid organics" OR fevergrass OR "fever grass" OR finpagrass OR #finpagrass OR "finpa grass" OR bioweapon OR "masks are infected" OR "cucumb…"

(afofo OR hydroxychloroquine OR "samuel kleda" OR kleda OR "Luc Montagnier" OR Montagnier OR infertility OR "cannot survive in Africa" OR "can't survive in africa" OR "alkaline food" OR alkaline OR alcohol OR "hot water" OR steam OR "vernon coleman" OR vernon OR coleman OR fraud OR "stay away from the vaccine" OR 5G OR "mark of the beast" OR "bill gates" OR aspirin OR rfid OR microchip OR "ginger tea" OR "kongo bololo" OR coroniser OR "hot temperature" OR cvo OR "covid organics" OR fevergrass OR "fever grass" OR finpagrass OR #finpagrass OR "finpa grass" OR bioweapon OR "masks are infected" OR "cucumber water" OR "black skin" OR misinformation OR disinformation OR "false information" OR "false rumour" OR "false rumor" OR "fake news" OR "misleading information" OR deception OR propaganda)

We had a total hit of 2201 number of tweets relevant to our study. The tweets were analyzed and coded.

We sent out messages on WhatsApp requesting people to share their stories about COVID 19 or COVID 19 Vaccine. We reached out to 27 people and had 141 number of stories. We then analyzed these stories for mis/disinformation.

Results

Evidence Synthesis

We identified 21 eligible studies from 10 databases (see figure 1). Studies were reported from 09 out of 23 countries in West and Central Africa.

Sectors Reporting Mis/Disinformation

All 22 studies reported on mis/disinformation on COVID-19. No study reported mis/disinformation on climate change, girl education, early marriages, maternal and child health. However, our stakeholder consultations suggested there exist cases of mis/disinformation in the other sectors meaning these are probably under reported in research.

Sector	Freq
COVID-19	22
Climate change	0
Women Empowerment	0
Mother and Child Health	0
Education of Girl Child	0
Advocacy Against Early Marriage	0
Sexual and Gender Based Violence	0

Figure 3: Number of Studies by Sectors for Cases of Mis/Disinformation

Platforms Reporting for Mis/Disinformation

We identified 2 main platforms for mis/Disinformation. These are Online Platforms n=33 (Facebook, Twitter, messenger, WhatsApp, Instagram, Facebook, YouTube, Websites, Telegram, and Flickr) and Offline Platforms n=16 (churches, marketplace, family homes, TV, bars, radio, neighborhoods, street). For offline platforms households (n=5) and neighborhoods (n=4) were the leading sources of mis/disinformation. For online platforms WhatsApp (n=9) and Facebook (n=7) were the leading sources. (See figure 3)

Sources/Platforms		Freq
Offline	Churches	2
	Market	1
	Family homes	5
	Tv	2
	Bars	0
	Radio	2
	Neighborhood	4
	Street	1
Online	Messenger	1
	Twitter	6
	WhatsApp	9
	Instagram	4
	Facebook	7
	YouTube	2

	Websites	2
	Telegram	1
	Flickr	1

Figure 4: Platforms/Sources of Mis/Disinformation
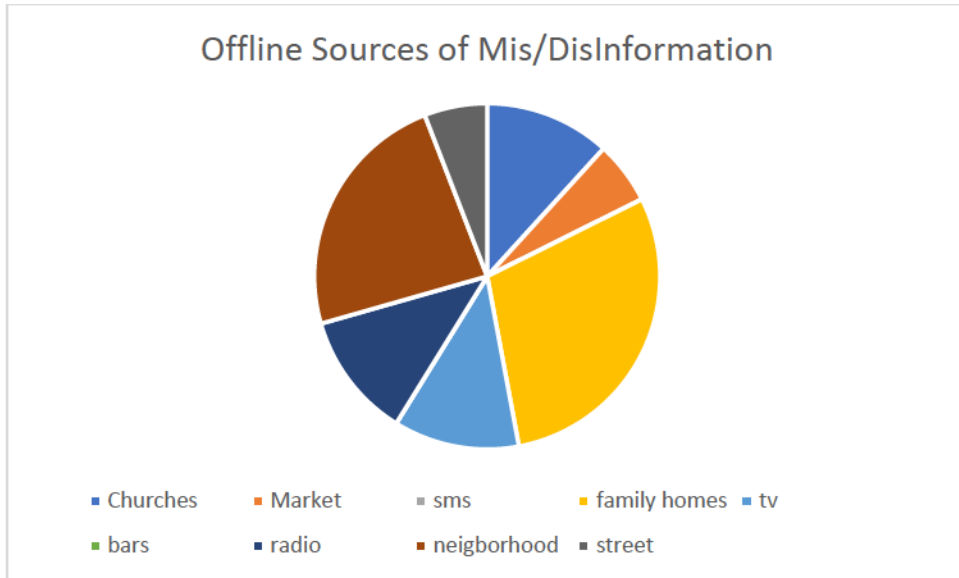
Figure 5: Offline sources of Mis/Disinformation
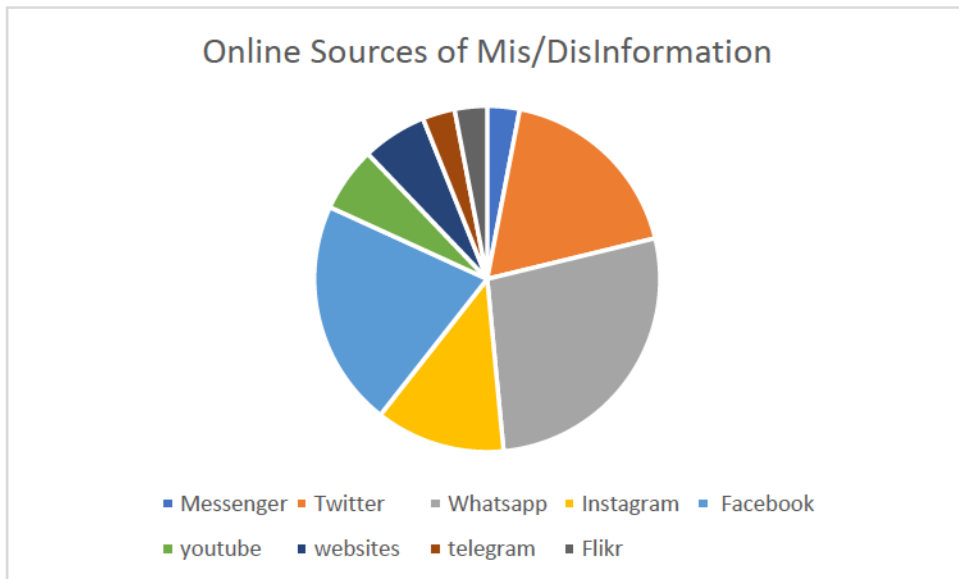
Figure 6: Online Sources of Mis/Disinformation
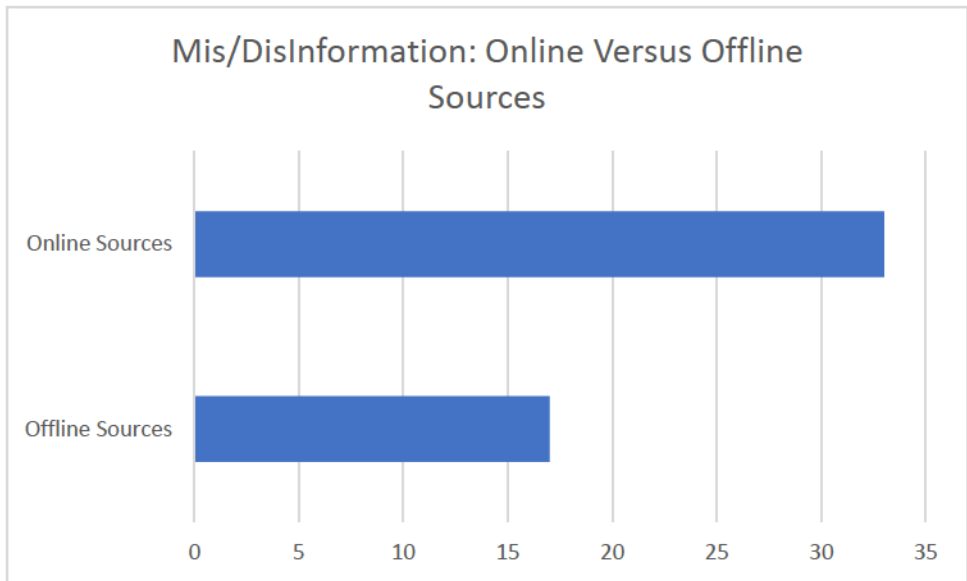
Figure 7: Online Versus Offline Sources of Mis/Disinformation

Actors in Mis/Disinformation

We identified 9 actors of mis/disinformation. There were in total 26 reported instances of mis/disinformation identified in existing literature. Religious leaders (pastors) contributed 23.07% (n=26) and politicians contributed 15.38% (n=26) in the mis/disinformation body of evidence.

Actors	Freq
Pastors	6
Journalists	1
Citizens	6
Public authorities	2
Politicians	4
Community leaders	4
Opinion leaders	1
Bloggers	1
Opposing leaders	1
Total	26

Figure 8: Actors Contributions to the body of evidence of mis/disinformation
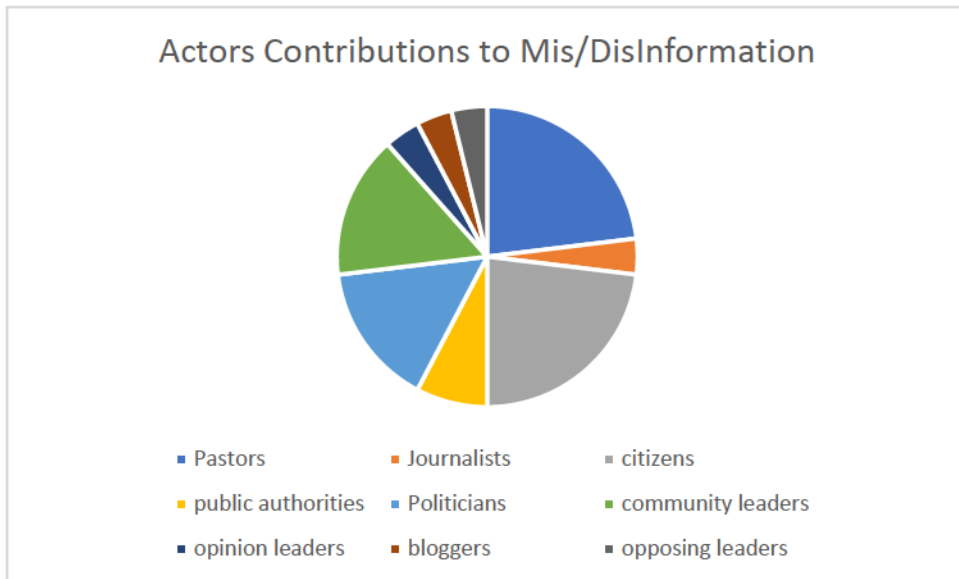
Figure 9: Actors Contributions to Mis/Disinformation

Types of Mis/Disinformation

We identified 8 types of mis/disinformation with 31 reported instances in existing literature. Myths (n=10) and conspiracy theories (n=8) were the leading reported types.

Table 1: Types of Mis/Disinformation

Types	Freq
Conspiracy theories	8
Myth	10
Misconception	5
Propaganda	2
Hoaxes	1
Hate speech	1
Infodemic	3
Folklore	1
Total	31
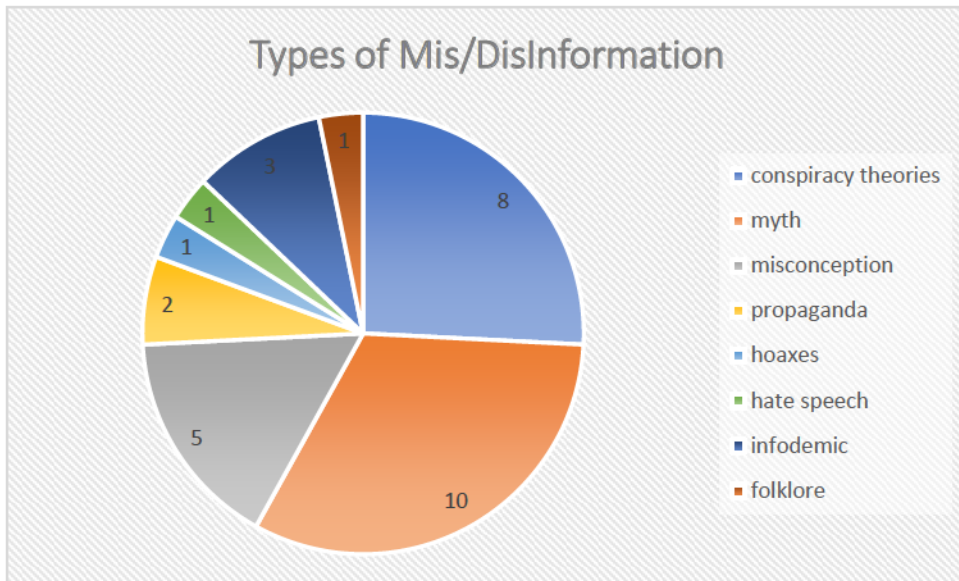
Figure 10: Types of Mis/Disinformation

Origin of Mis/Disinformation

6 origins of mis/disinformation were identified with social media, religion, culture, distrust in government and institutions as the main origin of mis/disinformation
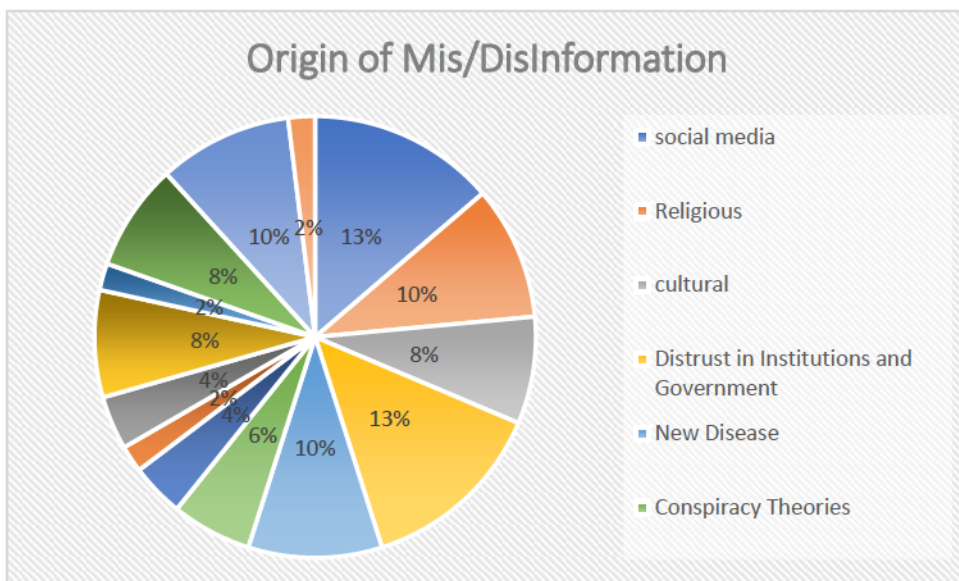
Figure 11: Origin of Mis/Disinformation

Impact of Mis/Disinformation

The study reported impact of mis/disinformation on death n=2, trust n=3, non-compliance with government guidelines n=8, vaccine Hesitancy n=3, increase spread of disease n=4, reduce ability of patient to access health service n=2, low uptake of research evidence in decision making n=1, drugs overdose n=2, fear and stigmatization n=2. See table 2

Table 2: Impact of Mis/Disinformation

Impact	Freq
Death	2
Increase distrust	3
Noncompliance with government guidelines	8
Vaccine Hesitancy	3
Increase spread of disease	4
Reduces ability of patient to access health service	2
Low uptake of research evidence in decision making	1
Drugs overdose	2
Fear and stigmatization	2
Total	27

Exploration of Mis/Disinformation Occurrences: Disinfodemic in West and Central Africa

Health Misinformation has always been a reality in the African continent and hence not a peculiarity of the 2020s. Before the outbreak of Covid-19, other novel diseases equally suffered from mis/disinformation, ranging from the 1980s HIV/AID, the Nigeria's early 2000s rumors on Polio Vaccine, Ebola conspiracy theories in the DRC, bringing us to Covid-19 misinformation catching flames across the whole west and central African region.

Although health misinformation in Africa is not something that all started with covid 19, its peculiarity around Covid-19 can however be linked to:

- The advent of Covid-19 in an era where social media has greater influence in West and Central Africa
- The advent of Covid-19 in an era where Africa is facing much conflict reducing their trust in government and institutions
- The Anxiety and fear related to the novelty of the disease

The impact of social media in fueling disinfodemic in the COVID 19 era has been greatly felt across Africa. According to UN Global Pulse, the United Nations' Secretary-General's initiative on big data and artificial intelligence reports that Information about the COVID 19 has been shared and viewed over 270 billion times online and mentioned almost 40 million times on Twitter and web-based news sites in the 47 countries of the WHO African Region of which A large proportion of this information is inaccurate and misleading and continues to be shared by social media users intentionally or unknowingly every day (Stories December 2020).

According to a WHO article published on the 30 July 2021, on data collected in 20 African countries, it suggests that false claims around COVID-19 vaccines are by far the most widespread myths around the pandemic and that a fear of side-effects is the main driver for people's reluctance to get vaccinated (Africa December 2021).

We explored mis/disinformation trends over time and with past diseases. We focused on measles, HIV/AIDS, Ebola, and COVID-19. We used a two-decade interval to search existing cases and trends in mis/disinformation in West and Central Africa through a search on Google. We identified an increase in mis/disinformation overtime with each new disease. (See Figure 11).

Trends in Mis/DisIsinformation Overtime in Middle Africa

	before 1970 (Measles)	1980 (HIV/AIDS)	2000 (EBOLA)	2020 (COVID-19)
Factors (Cummulative hits of misinformation in hundred picked on google)	18	238	302	886
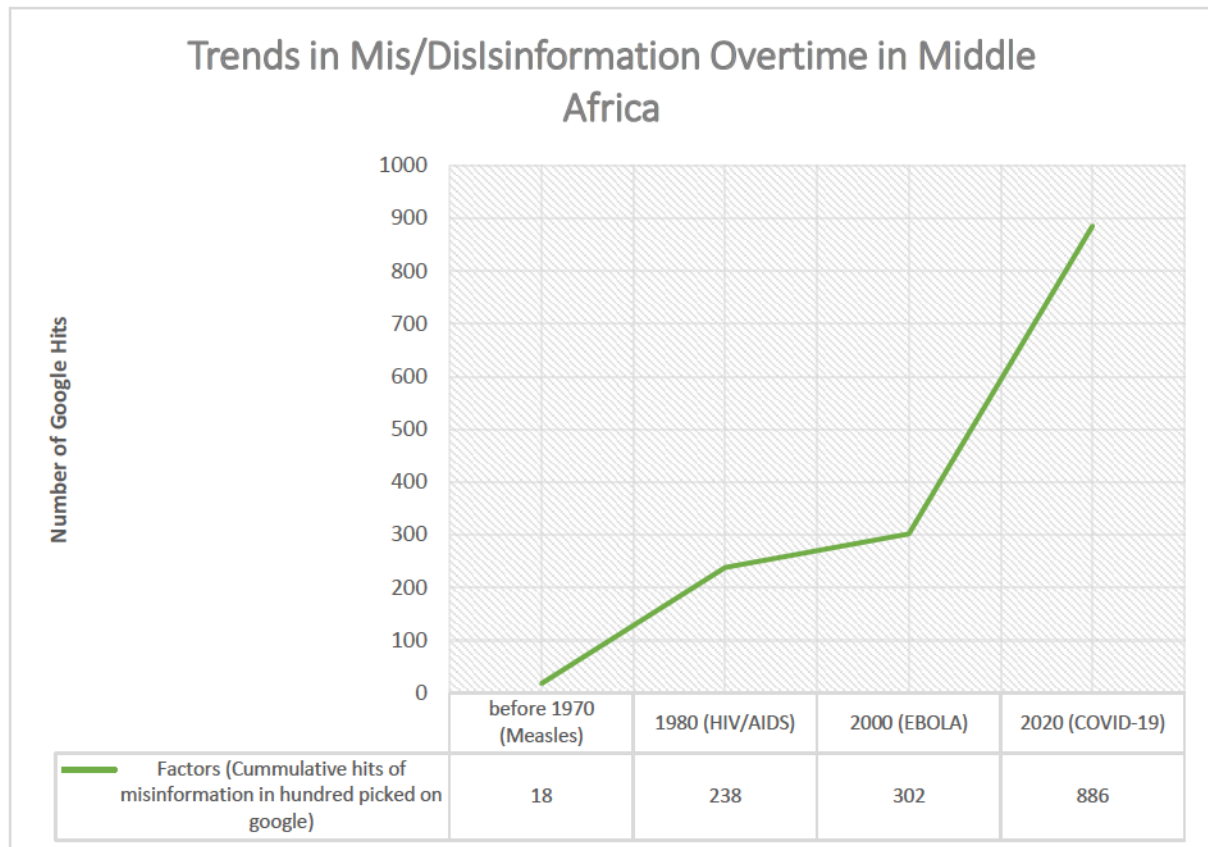
Figure 12: Trends in Mis/Disinformation with New Diseases Overtime

Four main factors were related to increase with mis/disinformation overtime. These are new disease, conspiracy theory, conflict, and social media.

Table 3: Factors Related to Trends in Mis/Disinformation Overtime

Measles	HIV/AIDS	EBOLA	COVID-19
New Disease	New Disease	New Disease	New Disease
	Conspiracy Theories	Conspiracy Theories	Conspiracy Theories
		Conflict	Conflict
			Social Media

Mis/Disinformation Undermines Research Evidence

An increasing interest on the use of research evidence by policy makers in public policy decision making has grown over the year. In the process of their decision making, policy makers must

often weigh a variety of factors in their decision-making process such as whether a proposed solution is within their mandate, does it conflict with an electoral campaign promise, is it in line with the ideological preferences of the party, and does the public generally accept the proposed solution? And most often solutions proposed to policy makers may or may not be supported by scientific evidence and thus mis/disinform them. Generally, most policy makers do not have scientific knowledge and therefore, public pressure and anxiety with regards to critical situation, without timely access to scientific evidence, might lead policymakers to focus more on addressing public concerns rather than what is the best-supported policy.

In Africa there is not just the issue of limited capacity and challenge of getting research evidence to policymakers, but also the issue of their acceptance and uptake of the research evidence into their decision-making process.

Qualitative Findings

Sectors

Study reported misinformation in 4 sectors (n=6). Reported sectors included COVID-19 (69.7%), environmental protection (13.9%), education of the girl child (7.4%), and mother and child health (4.1%). See figure 13
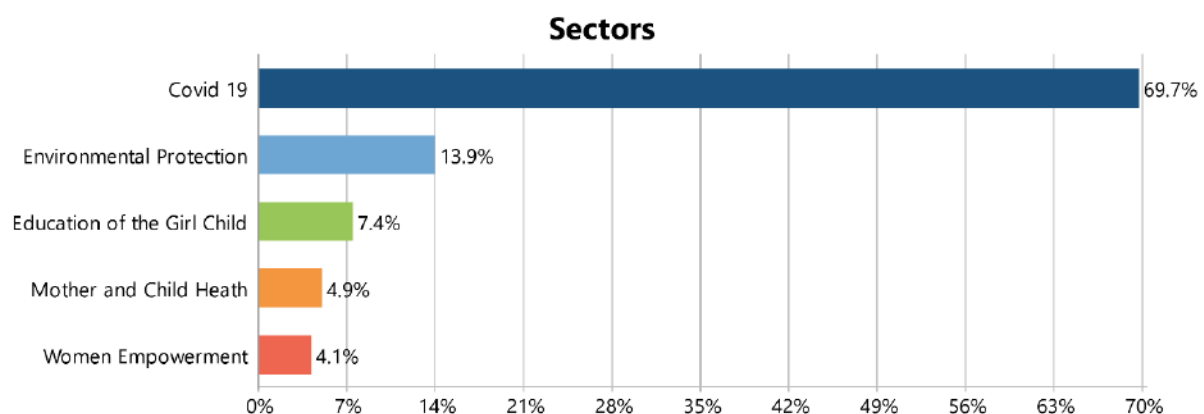
Figure 13: Sectors reporting on Mis/Disinformation

Origin of Mis/Disinformation

Our study reported six (6) key origins of misinformation. Proportion of coded segments was 37.1% (13 out of 35 coded segments) for religion, 28.6% for social media, 11.4% for conspiracy theory, 11.4% for culture, and 11.4 for crisis. See figure 13

Segments with code

Proportion of Coded Segments Reporting on Origin of MisDisInformation
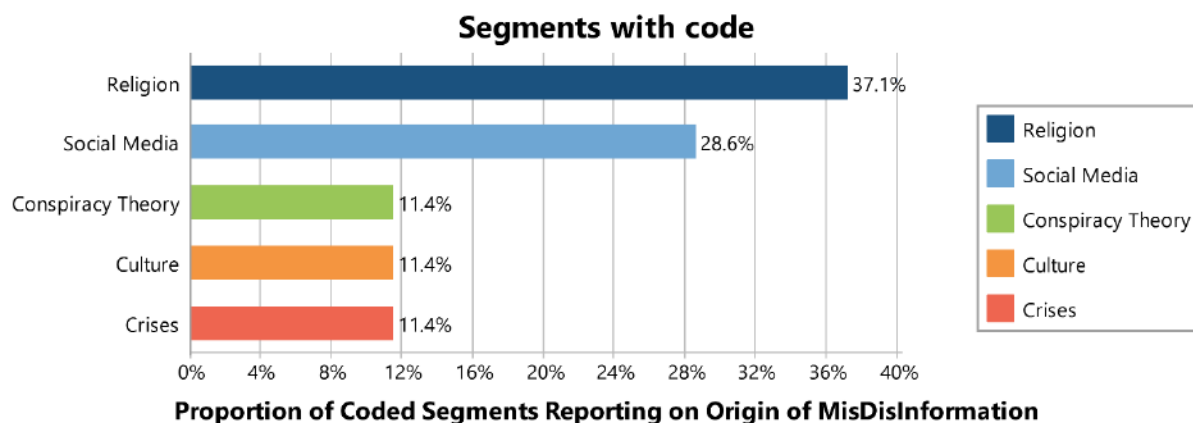
Figure 14:Origin of Mis/Disinformation

Segments with code on Origin of Mis/Disinformation

Table 4: Frequency and Percentage of Coded Segments Reporting on Origin of Mis/Disinformation

Origin	Frequency	Percentage
Religion	13	37. 1
Social Media	10	28. 6
Conspiracy Theory	4	11. 4
Culture	4	11. 4
Crises	4	11. 4
TOTAL	35	100. 0

Cases of Mis/Disinformation

Our study reported cases of Mis/Disinformation on vaccination, transmission, prevention and treatment and virginity. Proportion of coded Segments was 53.3% for vaccination, 24.4% for transmission, 17.8%, prevention and treatment 17.8%, virginity 4.4%.

Segments with code

Proportion of Coded Segments Reporting Cases of MisDisInformation
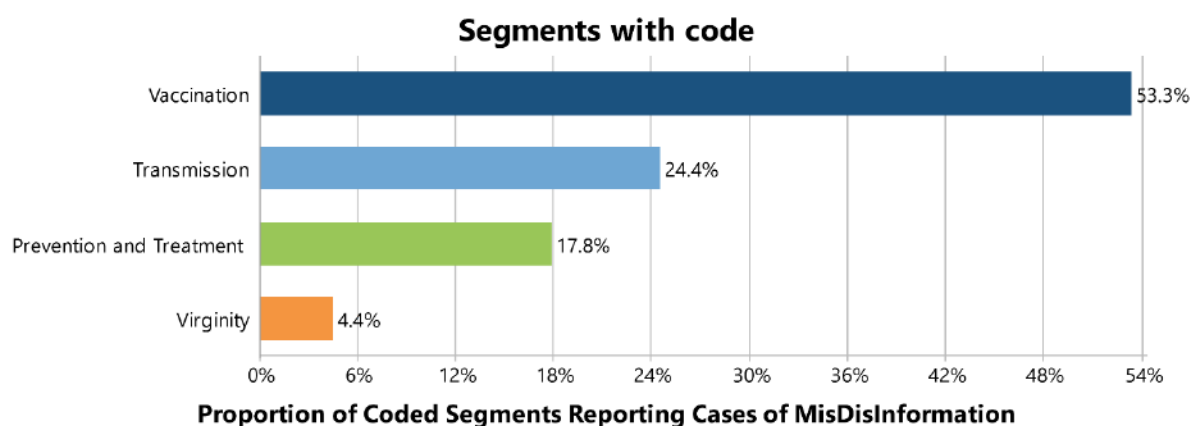
Figure 15: Cases of Mis/Disinformation

Transmission Mechanism of Mis/Disinformation

The study identified two main Platforms as mechanism through which Mis/Disinformation in spread. Proportion of coded segment was 53.3% for online Platform and 46.7% for offline platform. See figure 16. Online Platforms n= 13 (Facebook n=5, WhatsApp n= 4, website n=2, Instagram n=1, Google n=1. Offline Platforms n=19 (Public transportation n=3, 'Njangi groups' n=3, Churches n=3, Neighborhood n=3, Traditional media n=2, Workplace n=2, Market n= 2, Homes n=1) see figure 18. For online platforms; Facebook, WhatsApp and website where leading see figure. For offline platforms; public transportation, 'njangi groups', churches, neighborhood were leading. See figure 17.

Transmission Mechanism of MisDisInformation

Proportion of Coded Segments Reporting on Transmission Mechanism of MisDisInformation
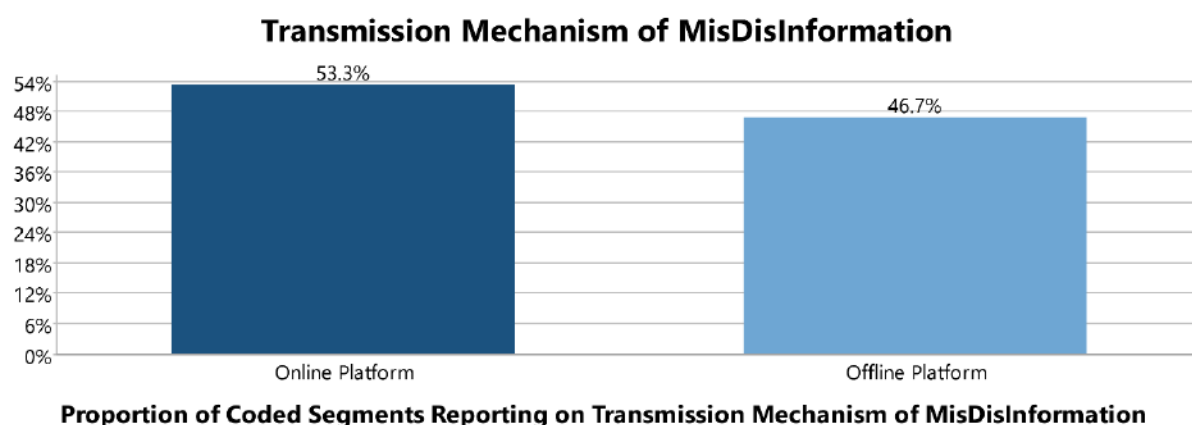
Figure 16: Online and Offline Platforms as Transmission Mechanism of Mis/Disinformation

Table 5: Frequency of Online and Offline Platforms

Platforms	Frequency
Online Platforms	
Facebook	5
WhatsApp	4
Website	2
Instagram	1
Google	1
Total	**13**

Offline Platforms	
Public Transportation	3
'Njangi groups'	3
Churches	3
Neighborhood	3
Media	2
Work place	2
Markets	2
Homes	1
Total	**19**
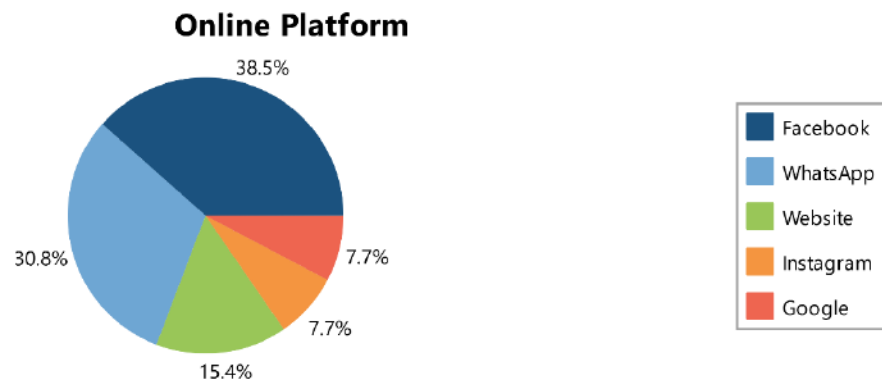
Figure 17: Online Platforms as Transmission Mechanism of Mis/Disinformation
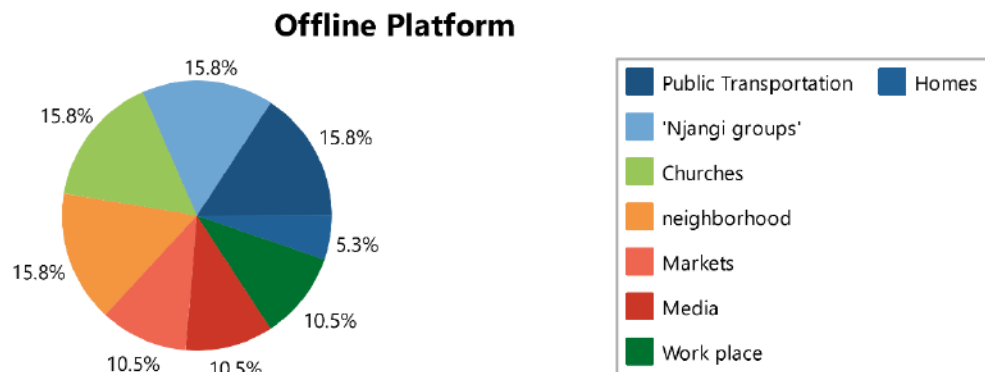
Figure 18:Offline Platform as Transmission Mechanism

Impact of Mis/Disinformation

The study reported impact of mis/disinformation on decision making, vaccine, compliance with government policies and death. The proportion of coded segments was; 51.52% (17 out of 33 coded segments) for poor decision making, 27.27% (9 out of 33 coded segments) for vaccine hesitancy, 15.15% (5 out of 33 coded segments) for non-compliance with government policies, 6.06% (2 out of 33 coded segments) for death.

Table 6: Impact of Mis/Disinformation

Impact	Frequency	Percentage
Poor Decision Making	17	51.52
Vaccine Hesitancy	9	27.27
Non-Compliance with Government Policies	5	15.15
Death	2	6.06
TOTAL	33	100.00

Code Theory Model
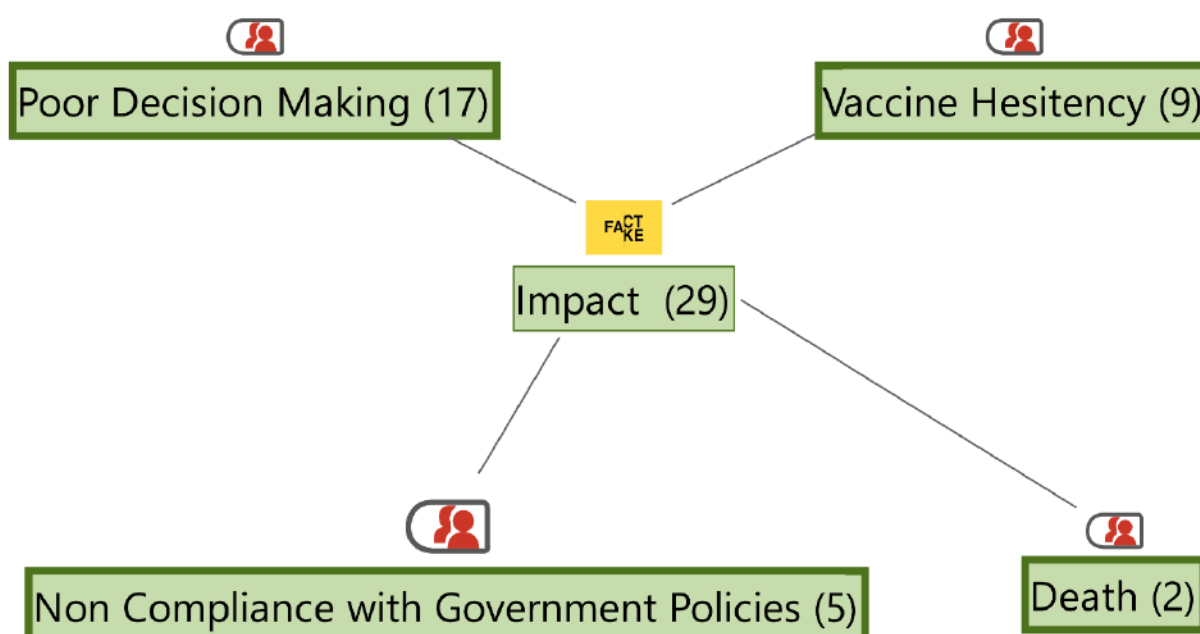
Figure 19: Code Theory Model on Impact of Mis/disinformation

Mitigation Strategies of Mis/Disinformation

We identified 7 mitigation strategies with a total of 116 coded segments. Proportion of coded segments was 28.4%(33 out of 116 coded segments) for media, 21.6% (25% out of 116 coded segments) for storytelling, 17.2%(20 out of 116 coded segments) for local language, 14.7% (17 out of 116 coded segments) for researcher and policy makers relationship, 9.5% (11 out of 116 coded segments) for collaboration with local leaders, 7.8% (9 out of 116 coded segments) for visuals, 0.9% (1 out of 116 coded segments) for factchecking platforms. See figure 19, see table 7

The study reported a connection between coded segments reporting on researcher and policy maker relationship and collaboration with local leader, local language and storytelling see figure 21

Mitigation Strategies
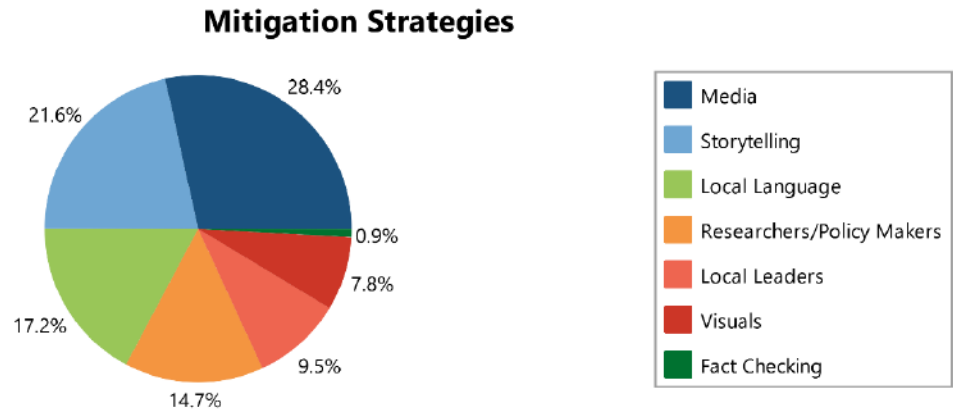
Figure 20: Mitigation Strategy of Mis/Disinformation

Table 7: Frequency and Percentage of Coded Segments Reporting on Mitigation Strategies of Mis/Disinformation

Mitigation Strategy	Frequency	Percentage
Media	33	28.4
Storytelling	25	21.6
Local Language	20	17.2
Researchers/Policy Makers	17	14.7
Local Leaders	11	9.5
Visuals	9	7.8
Fact Checking	1	0.9
TOTAL	116	100.00
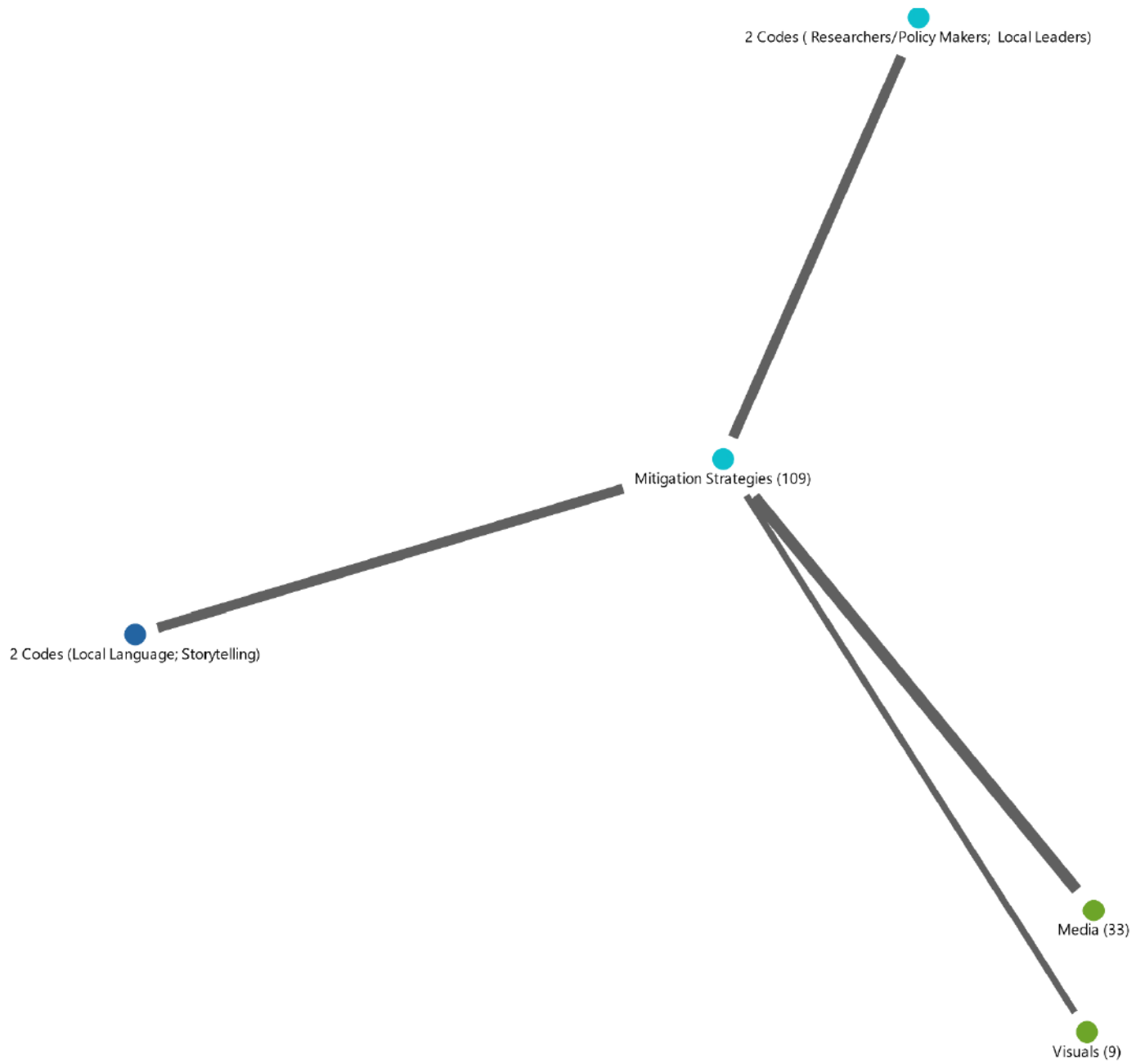
Figure 21: Intersection of coded segments of Mitigation Strategy

Limited capacity to appraise research evidence

Involving the best available research evidence into the decision-making process depends on the capacity to critically appraise the evidence. However, many African policy makers lack the capacity to appraise the research evidence, understand the research evidence to implement it into policies. This lack of capacity to appraise the research often lead policy makers to rely on their values and judgements, public opinion, interest and pressure. One of our interviewed participants was of the point of view that, the inability of policy makers to appraise research evidence, often lead policy makers to take wrong decisions that affects the public

"…Yes, because the government takes some decisions which are maybe not good for the whole public but particularly to health for example, let me just give you, the example of the lockdown. When the lockdown was lifted, we had a lot of more positive cases. Advice from the people at grass roots who are directly concerned with COVID was that this lockdown should not be lifted. But then the government is looking at not just the health of the population, but the economic situation of the country and other things. That is their responsibility to do, but then they did not consider the fact that these health specialists also said no, it is very dangerous for our population. So, they decided to overrule that" **Female policy maker Buea Cameroon (2): 41 - 41 (0)**

Limited access to research evidence

Informants expressed limited access to research evidence as one barrier to evidence use in public policy decision making.

Interviewed participant had the perception that Cameroon is not a research driven country, *"…it depends on the kind of audience you are dealing with in Cameroon well you're talking about research evidence in Cameroon how much research is being done in Cameroon"* Male **Policy maker Buea Cameroon: 183 - 183 (0)**

The informant stated that limited research is done in Cameroon which is due to limited finance allocated for research *"…research to me is absent in Cameroon because, research houses, research institutions, are sleeping, dormant. Take for example Irak; complains every day that they are dormant, they don't have money to do their research"* **Male Practitioner Bamenda Cameroon: 94 - 94 (0)**

 limited communication and poor reporting from researchers on the field could be one of the reasons why policy makers have limited access to research evidence which could lead to poor decision making by policy makers

"…we have activities that are carried out, but we don't have an accurate picture of the field because there is poor reporting. So that too could be a challenge for policy makers at higher levels." **Female policy maker Buea Cameroon 1: 39 - 39 (0)**

Conflict

crises in conflict affected areas limits the uptake of research evidence in decision making and leads to the spread of mis/disinformation. This is because in times of conflict, the public loses trust in government and institution. The mistrust of the public in time of conflict, could affect policy makers in their decision-making process, and in the enrollment of an intervention. Conflict affects not only the use of research evidence by the public, but also by policy makers in their decision-making process and practitioners during the rollout of an intervention.

"...and besides we are in this part of the world, this part of the country, the North West and the South West where there is crisis already, an ongoing crisis and the people see every strategy that the government is making as something against them" **Female policy maker Buea Cameroon (2): 13 - 13 (0)**

"...like I said, the crisis that we are going through. It came at this point in time when people in our area don't feel that the government really cares about them and then the government is so worried about COVID-19 and sending them information and then sending them a lot of protective things they are skeptical about it" **Female policy maker Buea Cameroon (2): 17 - 17 (0)**

"...unfortunately for us it is a little more complicated than it is in the rest of Cameroon. Already we live in a community where the people have lost hope completely in the government structures. Yes, they have totally lost hope so, anything that comes through the government structures to most people they will not even think twice about it" **Female policy maker Buea Cameroon (2): 55 - 55 (0)**

"...it had nothing to do with COVID but somehow they just received messages because of the start of the crisis they said government was going to send people to bring poisonous medications and all of that" **Female Practitioner Buea Cameroon 4: 15 - 15 (0)**

Culture

cultural aspects lead to the spread of mis/disinformation. It limits the uptake of research evidence in decision making within the African context. In instances where scientific evidence conflicts with cultural aspects, people are more likely to hold onto their culture than the scientific evidence. This greatly affects research and development within the African context. Effective evidence use

Figure 22: Culture as a Barrier to Evidence Use in West and Central Africa in times of COVID

depends on the uptake of research evidence by policy makers, the acceptance of an intervention by citizens, and the effective enrollment of an intervention by practitioners. informants revealed that traditional leaders believe anything that goes against their culture is wrong and should not be considered

"…So, even about sexual reproductive health, disinformation could still be spread by traditional or religious organizations who do not want, who feel that eeh certain programs might mislead their members or mislead their communities so they deliberately try to sabotage such projects by counteracting the information that the projects provide" **Female policy maker Buea Cameroon 1: 47 - 47 (0)**

"…then you have, you have those other personal traditional rulers, those traditional persons, who believe that they are also protected by their ancestors who have a certain belief that everything else which does not conform to the way in which they have been brought up is just false information" **Male Practitioner Buea Cameroon: 113 - 113 (0)**

Religion

Coexistence between religion and science within the African context is often a conflicting one. Our study reveals religion as one of the predominant origins of mis/disinformation in Africa with a proportion of coded segment of 15.8%. Religion has a great influence within the African context and in instances where science contradict certain religious aspect, the public is often faced with dilemma. This greatly affect the uptake of research evidence in decision making and impedes the effectiveness of an intervention.

Interviewed participants revealed that religion has led to the spread of mis/disinformation, counted instances where pastors spread believes that are contrary to public policies which in return affects the uptake of research evidence by the members of their community and affects the implementation of interventions;

« …bon si on parle de santé de la reproduction en générale il y'a certains religieux ou biens des prédicateurs qui sont le plus souvent contre la planification familiale » **Male Policy maker Dakar Senegal : 104 - 104 (0)**

« …ces dirigeants qui restent sur leur position et qui disent qu'ils ont raison sur tout et qui font une autre interprétation baser sur d'autre considération religieuse qui ne sont pas toujours celles que nous avons donc ces gens-là peuvent considérablement saper le travail que nous faisons » **Male Policy maker Dakar Sénégal: 112 - 112 (0)**

« …et des… des… des religieux qui sont contre la planification familiale n'est-ce pas, il y a d'autres qui donne les informations sur la vaccination qui disent que la vaccination c'est simplement pour amener nos filles à ne plus faire d'enfants » **Male Policy maker Dakar Sénégal: 140 - 140 (0)**

"…Yeah, you hear of pastors every day, in fact especially in COVID that has been one of the ways where misinformation has gone through, yes. Especially with COVID because there was this huge debate about it being something that they had manipulated pharmacists to infect people. So, some pastors were really insisting on it." **Female practitioner Buea Cameroon: 25 - 25 (0)**

Social Media

Participants revealed that social media has also led to the spread of mis/disinformation because it is more accessible to the public, anyone can post using social media and people are quick to forward whatever they receive without verifying the accuracy of the information. This limit the rate at which the public relies on research evidence to make evidence inform decisions.

"…The fastest source that I will say now is WhatsApp…… because information spread through WhatsApp is very fast from forums, from one forum to another. We have people who browse google you can just check on something and you get another information that is false"
Female Practitioner Buea Cameroon 4: 23 - 23 (0)
"some people especially with social media they are behaving like robots, u just go to a forum, they just post something then you are just forwarding without trying to make sense out of it"
Female Practitioner Buea Cameroon 4: 25 - 25 (0)
"…So sometimes the social media in itself is just a vehicle for this misinformation" **Male Practitioner Buea Cameroon: 121 - 121 (0)**

Women Empowerment in COVID 19

This study revealed the impact of COVID 19 on women's economy in Africa with a case study of a woman doing one of the most popular female business in the Grass fields of Cameroon and Nigeria called "The Toghu Business". The Toghu is a popular outfit reflecting the tradition and heritage of the North West Region.

Figure 23: The Popular Toghu Outfit of the North West Region

This toghu does not just holds cultural values, but also is a great business for most women. This lady reveals the benefit of her business in sponsoring her children's education and paying her bills. Unfortunately, the outbreak of COVID 19 is now a problem to her business. The informant is of the perception that if the government protect this business, create opportunities for such business to continue in time of COVID, it will help curb the inequities of COVID 19 affecting women.

"First they locked down ... then they started bringing in prints from China. We all know that the government was doing the lockdowns to get money from foreign countries. They didn't care what was happening to the common woman in the village like me. I make toghu dresses. That is what I use to sponsor kids in school, pay for hospital bills etc. That's my role as the mother to do what I can to support my household. But with the lockdown my business is shut down. My staff can't come to work. My kids have had difficulty eating and going to school now. Who knows any they are up to." **Female Citizen Bamenda Cameroon**

Figure 24: Rural Woman in Conflict Affected Area of Cameroon (Bamenda) and her Toghu Business now greatly affected by COVID 19

"My clients come from all over Cameroon, Nigeria, and abroad as well. Many people give command from America, Britain, France etc. They need it for weddings, born houses, cry dies, end of year parties etc. The cultural festivals at end of year is the boom period. But Covid completely destroyed my business because of the lockdown ... all for what? All for this in Yaoundé to get money from foreign governments" **Female Citizen Bamenda Cameroon**

"The Chinese are now printing Toghu. The government is just allowing them. It's killing our business. They may not even be having lockdowns. They just print but we struggle to knead and weave the original thing. We need to be protected. Women are the feeders of this nation and toghu is a woman thing. We must protect it from the fake prints" **Female Citizen Bamenda Cameroon**

Determinants of Success / Facilitators of Evidence Use for EIDM

Facilitators to Evidence use for EIDM were not identified in our study.

Strategies to enhance Evidence use for EIDM

Storytelling

Policy makers should think of better ways of communicating to the public using contextually relevant approaches like storytelling which is part of the African culture. Storytelling allows the message to easily stick in the mind of the listeners and the message is easily transmitted to the public. Informants equally perceived storytelling as a great way to educate children.

storytelling for behavior change should take into consideration, who tells

Figure 25: Storytelling Session in the Founangue Community of Maroua Cameroon organized by eBASE Africa on SGBV

the story, who constitute the audience, context and time. storytelling bridges the complexity of scientific research evidence and ensure that non-literate community also have access to research evidence. Using positive and success stories to communicate research evidence will limit the spread of mis/disinformation.

« Donc on doit pouvoir calibrer l'information en fonction de chaque cible. Comme je disais, catégoriser la population pour leur donner à toute la population la même information. Une information doit être calibrer dans la population. Il y a plusieurs catégories de population, il y'en a qui sont instruire, il y 'en a qui ne sont pas, il y a des gens qui sont fortement religieux d'autre qui le sont moins etc. Pour chaque type de catégorie de population vous devez calibrer votre information » **Male Policy maker Dakar Sénégal: 160 - 160 (0)**

"…like you group teachers, you teach them some songs in regard to pertinent issues in the society and teachers will in return teach those songs or sing them to their students and those students will take it home. Like for example; like a child of a 'buyam sellam' when she comes and sing those songs, the buyam sellam will take it to the market and I think it will help circulate the information "**Female Practitioner Yaoundé Cameroon 3: 27 - 27 (0)**

"I also think that if the… if the evidence can be presented with the use of songs, storytelling and the use of those things, it's really going to cut across because it is easy to sing a song and while singing that song there are times that you tell yourself that… you unconsciously hum…you sing the song and then you get the meaning of the song" **Female Practitioner Yaoundé Cameroon 3: 37 - 37 (0)**

"I think the information first of all has to be clear and simple, yeah and then we use other ways of disseminating information so that the information gets right down to the last person. That's real information, maybe using other strategies like storytelling that has been relegated to the

background for a long time now, it's true especially in our setting." **Male Practitioner Bamenda Cameroon: 94 - 94 (0)**

"they should be success stories that are told much more than scary stories, stories of people who, who are living better because they are adhering to certain standards and so on" **Male Practitioner Buea Cameroon: 344 - 344 (0)**

Constructive use of the media

A constructive use of both social and traditional media as mitigation strategy is the perception of the interviewed participants. The public is encouraged to gather information from public broadcast media because it stands as official media widely used by policy makers to communicate information. On the other hand, Policy makers are encouraged to be current

Figure 26: eBASE Africa using the National Media in Cameroon to create Awareness on World Evidence-Based Healthcare (EBHC) Day

on what media is mostly used by citizens such as; Facebook, WhatsApp to disseminate information. Researchers are encouraged to disseminate research findings using the same platforms they used to collect primary data from the public. The public should get information from government websites. Policy makers should automate information since citizens are more likely to use internet than reading hardback papers. Also, social media is the easiest, most accessible and fastest way of informing the public. Policy makers are equally encouraged to work with telecommunication networks to send messages to the public.

"I think that policymakers are supposed to be current; I mean they should be current with the media that is used by the population" **Female policy maker Buea Cameroon (2): 47 - 47 (0)**

"So, even though the policy makers, they are skeptical about sending those policies using social media, but that unfortunately is the most accessible method of information to people" **Female policy maker Buea Cameroon (2): 39 - 39 (0)**

"People use WhatsApp, people use Facebook groups and those are channels that official sources have not tried to really penetrate. Even government structures or even official organizations that have these platforms, they don't exploit them in a way that the population is open to, so, for me I think it's not just about getting information out there but getting it to where the people you want to receive it are in whatever form they find acceptable" **Female policy maker Buea Cameroon 1: 75 - 75 (0)**

"when the time will come we invite the public media, and private media, government owned media and privately owned media because they're all public media because they address the same audience the public" **Male Policy maker Buea Cameroon: 183 - 183 (0)**

Local language

Using the locale language of each community to disseminate research evidence will mitigate mis/disinformation. Interviewed participants revealed that, using a language not understood by most of a community can instead misinform them as they would likely not get the right message. it is important to contextualize the information to fit your targeted audience and to communicate the information on time before misinformation propagates. It does not only limit the spread of mis/disinformation, but increases evidence inform decision making especially in rural communities.

« …si je viens m'adresser à une cible et que je te dise un langage que celle-ci ne comprend pas c'est sûr et certain que je fais de la désinformation parce que, il y aura une traduction, une interprétation outre que celle que je donne-moi-même » **Male Policy maker Dakar Senegal : 41 - 41 (0)**

"…If you discuss with them in a language that they can understand without quoting all the jargons, without the big names, scientific names and all the things, I think that they could easily understand if it is brought to them locally. So, that is one of the reasons that research evidence is not used. It is not even used at all." **Female policy maker Buea Cameroon (2): 43 - 43 (0)**

"…Well, ehmmmm I think that first make this research evidence available in a language that's understood by the population and make it available as soon as it's possible and make it widely available before people have time to twist this information around" **Female policy maker Buea Cameroon (2): 57 - 57 (0)**

"…To me the first thing is to put information that everybody will understand talking from the village I'm coming from, I'm from Ndop. I think the language, I think you have to include their languages the languages they speak" **Female Practitioner Yaoundé Cameroon 3: 37 - 37 (0)**

"Cameroonians situations you know since we have two languages even the information at times is not well translated. So, it also makes it difficult for those who are part of the English-speaking regions who do not understand French, we also have to understand that texts like that, technical texts if not well translated, it is ehh in short you are getting, you are actually being misinformed. I think that's another." **Male policy maker Bamenda Cameroon: 61 - 61 (0)**

Researchers and Policy Makers relationship

Informants encouraged a strong collaboration between Policy makers and researchers for more evidence-based policy making. The government should allocate enough budget to finance research and greatly collaborate with research institutions as good decision making greatly depends on research evidence. Informants were of the perception that, educating Policy makers on the importance of research evidence in the decision-making process will improve the use of research evidence in policy decision making. Participants mentioned the importance of establishing policies stipulating that; all decisions taken by policy makers should

be evidence-based. Researchers on the other hand are encouraged to provide constant feedback and clear reporting for policy makers to make good decisions

"Well, policymakers, to me I believe that policymakers are supposed to work with research institutions, research institutions which should be like universities, should be institutions like IRAD which actually carry out research" **Male policy maker Bamenda Cameroon: 15 - 15 (0)**

Figure 27: eBASE Africa collaborating with local leaders in Bamenda Cameroon to communicate Research Evidence

"For me to take a good decision I must rely on research evidence once that is not there, do not expect that uh decision should be based on evidence. The people need to first buy the idea and know that whatever decision they have to take, they'll need that somebody gives him information about what exists in the field what exists in the whatever domain of human activity they want to take a decision" **Male Policy maker Buea Cameroon: 223 - 223 (0)**

« …le chercheur va pouvoir chaque fois allez voir les décideurs, les partenaires au développement ; qu'est-ce que je dois faire ? est-ce qu'il faut peut-être organiser les réunions pour la distribution de production ? … aller voir le pouvoir politique, l'exécutif, le ministère et cetera il va aller voir les députés ceux-là qui vote les lois et cetera » **Male Policy maker Dakar Senegal : 136 - 136 (0)**

"…public health that is one challenge we have that activities are carried out, but we don't have an accurate picture of the field because there is poor reporting. So that too could be a challenge for policy makers at higher levels" **Female policy maker Buea Cameroon 1: 39 - 39 (0)**

"If you are taking policies concerning agriculture, you should actually know, you should work with ehhh these institutions that are involved that are crosscutting maybe environment, it could be agriculture, and it could other Universities so that information, the policy that they are trying to put should be applicable" **Male policy maker Bamenda Cameroon: 15 - 15 (0)**

Collaboration with local leaders

Community engagement is essential to enhance the uptake of research evidence in decision making by community members. Collaborating with community leaders such as 'Njangi' group leaders, church leader, traditional authorities, to pass on information is important as they are more trusted by the members of their community. It also helps community leaders to clearly understand the message to better communicate to the community. It is important to work hand in hand with the community leaders to diagnose the problem of the community.

"...so that's why the community leaders become important in talking to the people okay? people who are... the persons who are supposed to pass on this information to the public should be the persons that the public can trust." **Male Practitioner Buea Cameroon: 280 - 280 (0)**

"secondly also, where people, the government needs to go through things like churches, churches, those are the places where people in fact gatherings. Where people gather, the government especially where people gather on a routine basis" **Female policy maker Buea Cameroon (2): 51 - 51 (0)**

"I think if people are involved in decision making, if if a representative of the population whom people can trust, if they are included in decision making, those decisions will be easily accepted." **Female policy maker Buea Cameroon (2): 55 - 55 (0)**

Visuals

Making use of the press media, print media, billboards, posters, outlets, can help in the communication of scientific research evidence to both literate and non-literate citizens. This can help mitigate the spread of misinformation especially in remote areas with limited access to tv and internet. Participants equally mentioned timely updates of information using visuals.
"the press media, print media, there should be these big, big posters on the road where they will be talking of COVID." **Male Practitioner Buea Cameroon: 328 - 328 (0)**

"...more times in different outlets, print media, hold on media and visual media, print media are like billboards and all that... And then to actually also have some, some of these billboards about the ware of misinformation and... and draw attention to the kind of information that we think is false" **Male Practitioner Buea Cameroon: 368 - 368 (0)**

"...people who are in remote areas where there is no connectivity be it radio signals, TV signals, the way to serve them is by print, you communicate the information to them by posters" **Male Policy maker Buea Cameroon: 195 - 195 (0)**

"...Maybe posters, maybe putting posters there or whatever and changing them regularly on the information they want the public to get yes, it will go a long way to make sure that whatever information is there that they want, people would actually get it." **Female policy maker Buea Cameroon (2): 51 - 51 (0)**

Fact checking

Informant suggested that Citizens should be educated on how to verify information on social media.

"That's unfortunately a bad thing because people just got introduced to on how to use social media but not how to verify information on social media" **Female policy maker Buea Cameroon (2): 39 - 39 (0)**

"okay now it will depend on the kind of information, so if we have information that policymakers want to put on social media, they should also be able to tell people how to verify that information." **Female policy maker Buea Cameroon (2): 53 - 53 (0)**

Additional findings

50 tweets out of 2201 were included for data extraction. The tweets reported on origin, impact and various cases of
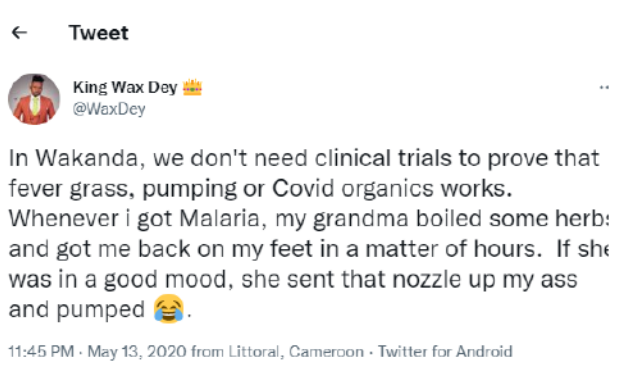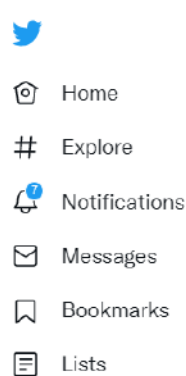
Figure 28: Tweet on COVID 19 Misinformation on Treatment

mis/disinformation: see table 8

Table 8: Tweets on mis/disinformation on COVID 19 in Cameroon

Main category	Sub-categories	Number of codes
Origin	Crises	1
Cases	Cases on transmission	5
	Cases on prevention and treatment	28
	Cases on vaccine	4
Impact	Vaccination	7
	Compliance with COVID guidelines	1
	Death	2

Out of 141 stories collected on WhatsApp, 42 stories were on COVID 19 mis/disinformation (COVID vaccines n=25, COVID 19 prevention and treatment n=11, COVID 19 grants n=5, and COVID 19 transmission n=1)

Discussions

The Theory of Disinfodemic

According to Julie Posetti et al, Disinfodemic can be described as the falsehoods fueling the pandemic and its impacts because of the huge 'viral load' of potentially deadly disinformation that is described by the UN Secretary General as a "poison", and humanity's other "enemy" in the COVID-19 crisis. All this can be summarized into what Marshall Mcluhan calls an era of information warfare. This information warfare in a time of
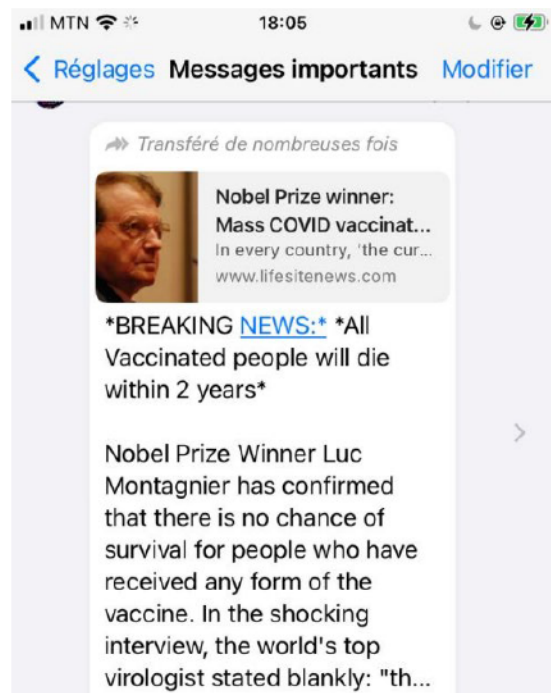
Figure 29: WhatsApp message on Misinformation on COVID 19 Vaccine

pandemic could be very devastating with deadly repercussion. Therefore, necessitating urgent and great efforts to limit the side effects of this information crisis. Our study suggests a relationship between mis/ disinformation and four (4) key components leading to a disinfodemic. These are *disease novelty (or novelty of a problem/issue), conspiracy theories, conflict, and social media.* This theory is developed based on using the most common approach a person in the 21st century will encounter mis/disinformation. A peak in mis/disinformation can be associated with social media in the 21st century. Meanwhile novelty of a disease creates an opportunity for conspiracy theories to emerge, social media provides the platform for such conspiracy theories to flourish. Conflict on the other hand also creates opportunities for conspiracy theories to be easily accepted by community members as people lose trust in world order and governments. These conflicts include political conflicts between nations and within nations. In the early days of COVID-19 pandemic distrust between nations was high as world leaders spent time which could be spent on controlling disease spread lashing at China. In preparing for future pandemics world leaders must keep in mind the role of these factors in influencing disinfodemic.

Evidence Hesitancy
At eBASE Africa, we define evidence hesitancy as 'The failure to accept evidence-based recommendations quickly or immediately usually because of an underlying reason which may be immediately known or unknown. Evidence hesitancy can be seen in policy makers, practitioners, and citizens alike. In this study, the underlying reasons for evidence hesitancy were;

Mis/disinformation
COVID 19 outbreak has revealed the danger of mis/disinformation on the uptake of research evidence. A deluge of rumors, fake news, conspiracy theories, have created allot of fear, mistrust as to the effectiveness of COVID vaccine in Africa leading to a great rate of vaccine hesitancy. Misinformation does not only affect the uptake of vaccines by participants but also affects public policy decision making on whether to rollout vaccines or not. Interviewed participants shared their experiences;

"I for one, I was really… I don't think I was really interested in the covid vaccine…… yes I wasn't interested with the COVID vaccine because, I've watched videos of people eh eh taking the vaccine and falling, having strange reactions so I wasn't interested" **Female Practitioner Yaoundé Cameroon 3: 13 - 13 (0)**

« Il y a beaucoup d'informations qui circule dans cela donc vous voyez chacun, il y'en a plein vous avez vu au Nigeria ce qui s'était passé par rapport à la vaccination pendant longtemps on a interdit les milliers des 1000000 de personnes à se vacciner » **Male Policy maker Dakar Senegal: 140 - 140 (0)**

Crises
The African context is characterized by persistent conflict. This persistent conflict breeds mistrust in government institutions which in return limits the uptake of research evidence by citizens. This study reported impact of crises on vaccine uptake where mistrust in government led to vaccine hesitancy

"And besides we are in this part of the world, this part of the country, the North West and the South West where there is crisis already, an ongoing crisis and the people see every strategy that the government is making as something against them" **Female policy maker Buea Cameroon (2): 13 - 13 (0)**

Culture

The African culture is at the heart of Africans therefore in circumstances where research evidence conflicts with Africans cultural beliefs, they are more likely to avoid an intervention to preserve their culture.

"…those traditional persons, who believe that they are also protected by their ancestors, who have a certain belief that everything else which does not conform to the way in which they have brought up is just false information… the traditional person said that no, it is the way they have being living their life from the beginning, they cannot turn around and ask them not to live their lives the way they're living the god of their land will not allow it happen" **Male Practitioner Buea Cameroon: 113 - 113 (0)**

Religion

Religion also leads to evidence hesitancy. This happens in instances where religious messages contradict scientific research evidence. For example, in our study we had informants reporting their experiences with COVID 19 and Family planning. Others recounted instances where religious preaching sees COVID 19 vaccine as the mark of the beast, relying on vaccine as being faithless, prayers should be prioritized over medicine, family planning vaccine makes girls to be promiscuous etc. These leading to evidence hesitancy amongst church members. Hesitancy amongst citizens eventually affects public policy decision making process.

« bon si on parle de santé de la reproduction en générale il y'a certains religieux ou biens des prédicateurs qui sont le plus souvent contre la planification familiale, ces dirigeants qui restent sur leur position et qui disent qu'ils ont raison sur tout et qui font une autre interprétation baser sur d'autre considération religieuse qui ne sont pas toujours celles que nous avons donc ces gens-là peuvent considérablement saper le travail que nous faisons » **Male Policy maker Dakar Senegal: 104 - 104 (0)**

"when you confront the pastor that God has given us knowledge that we should be able to use it to solve our problems he maybe interprets it as being having less faith, not having faith" **Male Practitioner Buea Cameroon: 192 - 192 (0)**

Social Media

Our study identified a relationship between social media and evidence hesitancy. There have been a significant increase of mis/disinformation on social media with the outbreak of COVID 19. Mis/disinformation shared in the form of videos, memes, images, and text reaching a wide number of people. This mis/disinformation creates doubts in the minds of social media users.
"my mom told me not to get vaccinated because there is a video that she was sharing that she has seen a video of so and so happening and if I get vaccinated it was going to harm me" **Female policy maker Buea Cameroon 1: 69 - 69 (0)**

Stakeholders Experiences with Evidence Use

Stakeholders reported opportunities for using evidence. In most cases with COVID-19 the use of evidence was shunned due to mis/disinformation. Considering that policymakers, practitioners, and citizens have access to mis/disinformation through more digestible formats

(social media, rumor mechanisms etc.) the competition with complex research evidence becomes very steep. Knowledge brokering could play a key role in upping the game for research. Knowledge brokering should exploit existing social media platforms especially for citizens. Knowledge brokering should also use evidence portals, policy briefs, and evidence summaries to reach stakeholders. Research must also consider co-creation or co-production of knowledge resources with stakeholders and for stakeholders to facilitate ownership and use.

Digitalization: A Present Opportunity

Considering the high penetration rate of mobile devices in rural Africa and the ever-present opportunity of using mobile phones for digitalization and artificial intelligence, mobile phone technology is an opportunity that needs to be exploited. Mobile phones have the power to over literacy barriers and themselves initiate and improve literacy. Use of voice, images, graphics, geolocations, and videos can potentially be exploited in unending ways to empower populations in remote communities. However, this opportunity has not been fully exploited by policymakers, developers, and citizens. Digitalization, data innovation, and artificial intelligence should be considered as cross cutting quality of the sustainable development goals and research.

Prioritizing Strategies for Evidence Use

Our study identified policy maker and researcher relationship as the best way to increase the uptake of research evidence by policy makers. This will help reduce the impact of mis/disinformation on the use of research evidence in public policy decision making.

For citizens, stakeholders prioritized storytelling, use of local language, collaboration with local leaders and visuals as the ways to mitigate misinformation affecting the use of research evidence by citizens in west and central Africa.

Equitable Evidence Use

Closing the equity evidence gap depends to a greater extend on contextual considerations, how accessible and comprehensive the research evidence is. For research evidence to achieve more equitable outcome, it must be made available for innovative and improved decisions making for all. Within the African context, equity in evidence is far beyond reality. This can be associated to the complexity of research terminology and due to the fact that it is contextually irrelevant.

Our study revealed that, the low uptake of research evidence is because it is not inclusive in nature. Informants were of the view that, for research evidence to be made accessible for all, language, literacy rate, cultural aspects should be considered in the production and communication of the research evidence

Culture Considerations in Evidence Use

The wide research practice gap in Africa raises an alarm for the use of more inclusive strategies to ensure the research evidence is well understood by policy makers and the community at large and effectively implemented. Research evidence for evidence inform decision making needs to be culturally sensitive. Cultural sensitivity includes the attributes of knowledge, consideration, understanding, respect, and tailoring for effective communication, effective

intervention, and satisfaction (Cynthia L. Foronda 2008). Our study identified using local languages, and storytelling as aspect of cultural considerations for EIDM.

For research evidence to serve its principle of making research evidence available for all, the African culture needs to be integrated within the evidence production and communication. Policy makers, researchers and practitioners need to have an in-depth knowledge of the culture of each beneficiary community of an intervention, respect the culture, and tailor the intervention to reflect the culture of that community.

Our study identified local language as a strong component of the African culture and a great tool to consider for effective communication of research evidence. The African continent is one of the most linguistically diverse continent with thousands of different spoken languages (Nettle 1998).The African continent also has a high rate of illiteracy with majority of its population living in rural communities ((UIS) september 2017). Research evidence is most often produced in official languages such as English and French not spoken and understood by a greater population of the African continent. To bridge this gap, it is important to communicate the research evidence in the local language of each beneficiary community. The spread of mis/disinformation was attributed to ineffective communication.

« Il y a une cible au niveau communautaire qui n'est pas alphabétisée. Si je viens leur parler de données probantes, c'est sûr et certain des gens qui ne comprendront absolument rien à ce langage" **Male Policy maker Dakar Senegal: 41 - 41 (0)**

"Sorry to me the first thing is to put information that everybody will understand, talking from the village I'm coming from I'm from Ndop. I think the language, I think you have to include their languages the languages they speak" **Female Practitioner Yaoundé Cameroon 3: 37 - 37 (0)**

The African tradition of storytelling remain one of our oldest cultures and medium of communication. It serves in passing on traditions, codes of behavior, as well as maintaining social order. important stakeholders are still left out of the evidence ecosystem such as non-literate community who contribute to a greater part of the African population. It is therefore important to consider storytelling as a brokering and translation tool of research evidence to non-literate communities. This will curb the rate of mis/disinformation affecting the use of research evidence, improve on the uptake of research evidence especially by those who are not science savvy.

Interviewed participants believed that to make research evidence more accessible it is important to use storytelling as it is part of the African culture, but also could easily help transmit message across.

"I think the information first of all has to be clear and simple, yeah and then we use other ways of disseminating information so that the information gets right down to the last person. That's real information, maybe using other strategies like storytelling that has been relegated to the background for a long time now, it's true especially in our setting. **"Male Practitioner Bamenda Cameroon: 94 - 94 (0)**

"I think when you introduce the storytelling issue I think that, it just came to my mind that that was the best way you talk to teens, to younger children and it is the same way I think we can talk to even elders" **Female policy maker Buea Cameroon (2): 43 - 43 (0)**

In Mars 2020 shortly after the outbreak of COVID 19, the African popular artist Koffi Olomide came out with a song to sensitize the population on preventive measures entitled "Corona Virus Assassin". This song recorded a number of 2.9 million views with about 29 thousand likes and more than three thousand comments just on YouTube. This reveals the power of storytelling in communicating scientific research evidence. In his song he draws the public's attention to respect COVID 19 preventive measures of staying indoor, social distancing and washing of hands.

Few months after the release of "Coronavirus Assassin", in May 2020, Cobhams Asuquo released a song entitled "We go win (Corona)". This song had above 39 thousand views just on YouTube. His song did not only sensitize the community on COVID 19 preventive measures but also had message on the danger of fake news and urging the pubic not to share fake news. His song was in the pidgin language; one of the local languages popularly used by non-literate communities of the English-speaking parts of Africa

...No shaking hands with your neighbor
Blow them a kiss from afar
Use soap and water to wage war...

...Self-isolate for the sake of...
All the people wey you love ooo
Don't go around spreading rumors
Cos fake news won't help anyone

Institutionalization of EIDM

Following the definition adopted by Li et al, institutionalization refers to "...developing accepted norms and rules and sustaining effective working relationships between relevant policymakers and research institutions" (als March 2017). By Norms and rules Li et al are looking at the notions of transparency, accountability, citizen engagement, openness, deliberation, and contestability. This is because it improves on the quality and credibility of evidence-informed-priority-setting decision making. As mentioned by Conaway "And if the goal is to drive research
use among policy makers, then an obvious first step is to put policy makers and researchers
in the same room" (Conaway Aughust 2021)

Our study identified strengthening policy makers and researcher's relationship as a way of institutionalizing research evidence for EIPM. Policy makers are encouraged to network with research institutions for better use of research evidence in policy decision making. Our study reported the ineffectiveness of EIPM as a result of lack of collaboration between researchers and policy makers. A good collaboration will lead to consistent feedback and reporting by researchers, availability of research evidence by policy makers for their policy process.

Study Limitations

1. All identified participants did not take part in the interview. This is because getting people to participate in an interview online is often difficult. A way out could be motivating participants with some money for data or doing the interview face to face

2. The study did not report on all the 6 sectors of interest. Our qualitative findings revealed mis/disinformation reported in some sectors suggesting that, mis/disinformation exist in other sectors but are not available as peer reviewed literature.

Annexes

Annex 1: Data Extraction Form

Eligibility

Date:	02nd October 2021
Extractor (initials):	BPM
Trial ID:	Okereke 2021
Report Name:	COVID-19 Misinformation and Infodemic in Rural Africa
Journal:	The American Society of Tropical Medicine and Hygiene
(1) Design	
(a) What kind of study or report is it?	SR RCT <mark>Obs Study</mark> Qual Study Quant study Cohort Study Project Report Opinion Paper (Highlight)
(2) Participants	
2.1 (a) Is this study being reported from a West and Central African Country?	<mark>Yes</mark> No Unclear (Highlight)
(i) If yes, please list the countries	Nigeria
(ii)Any other reason	
(b) What sector is the study looking at? (List the sectors of interest	Covid 19
(i) Add any name and contacts or organization fighting mis/disinformation in west and central Africa?	Melody Okereke, Faculty of Pharmaceutical Sciences, University of Ilorin, Ilorin, Nigeria, E-mail: melokereke30@gmail.com
(c) Are policy makers practitioners or public Concerned?	Public, Policy makers
If (a) answer 'No', exclude. If 'Yes' go to question (2.2)	
2.2 Was there a collaboration on the project?	Yes, <mark>No</mark> Unclear (Highlight)
If yes to 2.2 please list collaborators	
(3) Interventions	

(a) is this reporting on DIS/misinformation, rumors, fake news?	Yes	No	Unclear (Highlight)
(b) Did Mis/Disinformation affect decision making?	Yes	No	Unclear (Highlight)
If (a) or (b) answer 'No', exclude. If 'Yes' go to question (4)			
(4) Outcomes			
Did the study report any of the following outcomes?			
(a) impact of mis/disinformation on the Uptake of research evidence reported? If yes, please highlight the sectors reported -Covid 19? -Mother and child health? -climate change and food security? -early marriage and sexual violence? -education of the girl's child? -women empowerment?	Yes	No	Unclear (Highlight)
(b) Barriers/challenges in accessing the right information reported? If yes, please highlight the sectors reported -Covid 19? -Mother and child health? -climate change and food security? -early marriage and sexual violence? -education of the girl's child? -women empowerment? If yes, please highlight the sectors reported for both A and B	Yes	No	Unclear (Highlight)

(c) Sources of Mis/Disinformation
  — Facebook
  — Twitter
  — WhatsApp
  — Messenger
  — Market
  — Private groups
  — etc
	Yes	No	Unclear (Highlight)

(d) Types of misinformation
    a. Fake news
    b. Conspiracy theory
    c. Blog
    d. Rumours
    e. Religious belief
    f. Cultural belief
    g. Opinion
    h. Myth
    i. Etc
	==Yes== No Unclear (Highlight)

(e) Origin of Mis/Disinformation reported? If yes, please highlight the sectors reported ==Covid 19?== -Mother and child health? -climate change and food security? -early marriage and sexual violence? -education of the girl's child? -women empowerment?	==Yes,== No Unclear (Highlight)
(f) cases of misinformation reported? If yes, please highlight the sectors reported Covid 19? -Mother and child health? -climate change and food security? -early marriage and sexual violence? -education of the girl's child? -women empowerment?	==Yes,== No Unclear (Highlight)

(g) Actors promoting misinformation reported? If yes please highlight the sectors reported
Covid 19?
    a) Community leader
    b) Social media blogger
    c) Teacher
    d) Doctor
    e) Market women
    f) Citizens
    g) Politician
    h) Religious leader
    i) Etc
	==Yes,== No Unclear (Highlight)

(h) Mis/Disinformation Mitigation strategies reported? If yes, please highlight the sectors reported
  a. News items on national TV
  b. flyers
  c. posters
  d. storytelling
  e. radio announcements
  f. etc
	<mark>Yes,</mark> No Unclear (Highlight)

If **all** (a) to (h) answer 'No', exclude.	

Final Decision	
Include	<mark>Yes</mark> No (Highlight)
Exclude	Yes No (Highlight)
Unclear	Yes No (Highlight)
Excluded or unclear because:	
If 'Unclear', action taken:	

Risk of Bias

(Not applicable in this light touch review)

Included Studies

Date:	
Extractor (initials):	
Trial ID:	
Trial Name:	
Journal:	
(1) study details	

Project Dates (from-to: dd/mm/yyyy):	
Country:	Nigeria
Setting (urban/rural):	Rural
Funding:	
Language of published report	English
Baseline data	Yes ==No== (Highlight)
Was a progression of outcome measures?	Yes ==No== (Highlight)

(2) Participants	
Inclusion Criteria:	Exclusion Criteria:
The study was reported from a west and central African country and focused on covid 19 misinformation	
Participants profile (describe if policy makers, women, children, PWDs, indigenous population etc.)	
Intervention description (describe intervention in detail)	

Data Extraction

Date:	
Extractor (initials):	
Trial ID:	
Trial Name:	
Journal:	

(5) Sources of mis/disinformation			
Number of Platforms or mechanism through which rumors was spread in project:	1 Offline platform		
Describe platform	Church Face to face communication amongst community members		
Describe mechanism			

list actors promoting mis/disinformation affecting decision making
 	
    a) Community leader
    b) Social media blogger
    c) Teacher
    d) Doctor
    e) Market women
    f) Citizens
    g) Politician
    h) Religious leader
    i) Etc
	Community leaders
	
	Pastors
	
	Citizens		

Notes:			

(6) Primary outcome			
List impact of mis/disinformation reported on decision making	Noncompliance with covid guidelines Death Vaccine Hesitancy Wide spread of the virus Staying away from health facilities Affect the implementation of the disease management strategy		
List Barriers/challenges in accessing the right information reported	– poorly developed strategies and mechanisms for crisis and risk communication – limited access to social media and other information tools – poor access to accurate and evidence-based information – lack of capacity to appraise the right information because Rural dwellers, are unable to ascertain what is reliable and tends to believe whatever information is trending in their community – poor reporting		
List Types of misinformation	Myth Misconception Speculations		
List origin of mis/disinformation affecting decision making reported	– poor living conditions, – poor health literacy, – ease of access to unambiguous information, – influence of culture and religion, – demography – political instability – inadequate research capacity		

List cases of mis/disinformation on decision making reported	– messages discouraging contact with animals – misbelief that the virus is yet to be a reality in African countries and that it cannot spread in extreme temperatures – misbelief that COVID-19 pandemic is a political conspiracy to receive aid and monetary support from health organizations – widespread belief that drinking alcoholic beverages can kill the virus – it is believed that the disease only affects people of higher socioeconomic status – genetic makeup of Africans provides strong immunity against the virus – consumption of highly concentrated alcohol could disinfect and rid the body of the coronavirus
List Mitigating strategies reported	Use of local languages to communicate Engage with community leaders Increase health resources Increase
Notes:	

Questionnaires for Policy Makers

Introduction

Disinformation and Misinformation:

"Disinformation" entails the distribution, assertion, or dissemination of false, mistaken, or misleading information in an intentional, deliberate, or purposeful effort to mislead, deceive, or confuse. It might therefore be described as "misinformation with an attitude"(Fetzer, 2004). while. disinformation could be false information that's spread with the specific intent of misleading or deceiving people, on the other hand misinformation is more generally refers to false information, regardless of whether or not it's intended to mislead or deceive people Disinformation most often, does not always come directly from the organization or the individual that intends to deceive(Fallis, 2009)

Storytelling:

Storytelling is the vivid description of ideas, beliefs, personal experiences, and life-lessons through stories or narratives that evoke powerful emotions and insights(Serrat, 2008). Storytelling has been a part of humanity since people were able to communicate and respond to the basic biological urge to explain, educate and enlighten. Cave drawings, traditional dances, poems, songs, and chants are all examples of early storytelling(Anderson, 2010).In human culture, storytelling is a long-established tradition. The reasons people tell stories are manifold: to entertain, to transfer knowledge between generations, to maintain cultural heritage, or to warn others of dangers(Lugmayr et al., 2017)

Rumors:

Rumor is often viewed as "an unverified or unofficially interesting story, account or explanation of events circulating from person to person and pertaining to an object, event, or issue in public concern, Rumors are also often discussed with regard to "misinformation" and "disinformation"(Ruokolainen & Widén, 2020)

Evidence barometer:

The evidence barometer is an automated tool that measures 10 evidence points including stakeholders' engagement, evidence search, and use, equity, peer review, addressing conflict of interest, the rigor of evaluation, systems integration, resource use, ethics consideration, and report publication. It is and evidence brokering tool adapted for use at the central level (ministry) and decentralized level (districts) by policymakers and development agencies(Kamga & Okwen, 2020)

Bio information
  Name:

Nationality:
Age:
Sex:
Position:
Institution:

Section A: Problems/Barriers/sources

1. What words come to your mind when you hear of misinformation and disinformation?
2. According to you what are the challenges of access to information by policy makers in decision making?
   a) What do you think are the causes of these challenges?
   b) Are these challenges just at the national, regional or global level?
   c) What are the various steps that should be taken by legislator and the government as a whole to solve these challenges?
3. What informal forum of sharing information do you know?
4. Do you think these informal forums provides evidence-based or trustworthy information?
5. What information do you need when making decisions in your sector?
   a) What sources do you need to collect the information supporting your decision making?
   b) Which sources do you use to get the information?
   c) Who is the creator of the sources of your information?
   d) Who shares it?
6. What mechanism do you think is needed to put research evidence at your disposal?
7. How do you differentiate research evidence from rumours when choosing information informing your decision making?
8. Do you think rumours affects the implementation of your decisions?
   a. If yes: in what way?
9. How are your decisions received by the public? either with trust or distrust?
10. How many times has rumours affected your choices of information?
11. Where and how are your information published?
12. Is your information made accessible and comprehensive for the public?
13. How are you being inclusive of non-literate communities

Section B : Mitigation Strategies/Solutions/Recommendations

1. How do you think storytelling and policy brief can increase the uptake of research evidence?
2. How can evidence barometer help enhance your uptake of research evidence?
3. What are the strategies you've put in place to fight rumours affecting your decision making and how often do you use them?

4. What strategies do you use to mitigate rumours affecting the implementation of your decisions?
5. How inclusive are you of women, girls or any disadvantageous group in making your decisions?
6. What are the strategies used to ensure that your decisions are easily accessible to the public than rumours?
7. What is the capacity of citizens to critically appraise research evidence and evidence informed policies?
8. Do you have access to research evidence and the capacity to distinguish rumours from research evidence?
9. How should research evidence be placed at the disposal of the public?
10. How do you intend to mitigate rumours affecting the uptake of your decisions in rural areas?
11. Which source of information will you recommend to the public?

Annex 3: Regional consultation on experiences of citizens with decision making: DELPHI Survey Questionnaire

Questionnaires for the General Public

Introduction

Disinformation and Misinformation:

"Disinformation" entails the distribution, assertion, or dissemination of false, mistaken, or misleading information in an intentional, deliberate, or purposeful effort to mislead, deceive, or confuse. It might therefore be described as "misinformation with an attitude".(Fetzer, 2004) while disinformation could be false information that's spread with the specific intent of misleading or deceiving people, on the other hand misinformation is more generally refers to false information, regardless of whether or not it's intended to mislead or deceive people Disinformation most often, does not always come directly from the organization or the individual that intends to deceive (Fallis, 2009)

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Bio information

     Name:
     Nationality:
     Age:
     Sex:
     Position:
     Institution:

Section A: Problems/Barriers/sources

1. What words come to your mind when you hear of misinformation and disinformation?
2. Who are actors spreading mis/disinformation?
3. what sources are used to spread mis/disinformation and why do people believe in misinformation?
4. Causes of Mis/disinformation
5. Do you know of any case of misinformation in your sector?
6. How do you get inform about Covid 19 and other pertinent issues?
7. Do you always verify the author of the information you receive?
8. Do you always verify if the information you receive is a policy or rumour?
9. Has misinformation affected your decision or anyone around u?
10. Which one is easy to trust, rumours or public policies?
11. What is more accessible to the public rumours or public policy?
12. Can you give me an impact of misinformation in your life?
13. Do you in any way feel excluded with regards to decisions passed by the government on pertinent issues like Covid?
14. What is more likely to influence public attitude rumours or research evidence?
15. Do we have the capacity to appraise research evidence?
16. Do we have access to research evidence?

Section B : Mitigation Strategies/Solutions/Recommendations

1. How can policy makers ensure that the right information is made accessible and comprehensive for the public?
2. In what way can the right information be easily transmitted?
3. In what way can information be verified?
4. How do you see storytelling as one of the strategies to ensure that research evidence is made comprehensive for the public?
5. What can be done to enhance the public trust in policies?
6. how should official information be placed at the disposal of the public?
7. What do you think can be done to mitigate mis/disinformation affecting the uptake of research evidence?
8. How can the government ensure that vulnerable populations are included in accessing the right information?

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