RARITY AND LIMITED GEOGRAPHICAL COVERAGE OF INDIVIDUAL LEVEL ALCOHOL INTERVENTIONS IN SUB SAHARAN AFRICA. FINDINGS FROM A SCOPING REVIEW.

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Abstract

Introduction

A previous review on brief alcohol interventions in sub-Sahara Africa showed most of the interventions were implemented in East and Southern Africa. We carried a scoping review to assess the current amount and types of alcohol interventions in SSA.

Methods

We searched six databases (MEDLINE, EMBASE, Global Health, Africa-wide, CINAHL and PsycINFO) for publications prior to June 2018. We used the search terms for alcohol use, alcohol intervention and African countries' names. We identified 59 papers on alcohol interventions of which 26 were eligible for inclusion in the final analysis.

Results

Of the 26 eligible papers, 18(69 %) were carried out in South Africa. Majority 15(58%) of the interventions were randomized clinical trial, followed by seven (27%) quasi-experimental and evaluation of the intervention and five (19%) cluster randomized trials. Most of the studies targeted patients and pregnant women. Only a few studies focused on sex workers and students.

Conclusions

Our findings show that the assessment of effectiveness of individual level alcohol interventions is rare in SSA. In addition, these interventions were polarised in two countries. There is an urgent need for an evidence base on the effectiveness of alcohol interventions commensurate with the scope of the problem in SSA.

Keywords: Alcohol use; Interventions; Review; Africa, Word count= 200

Main Text

Introduction

Harmful alcohol use is a major public health problem worldwide. The WHO reports that globally, 2.3 billion people are current drinkers, and alcohol use is responsible for 5.3% of all deaths and 5.1% of the burden of disease in disability adjusted life years (DALYs) globally (Rehm et al., 2009). The total adult per capita consumption among adults in 2016 in the World Health Organisation (WHO) African region was 6.3 Litres of pure ethanol (World 6.4 Litres). While this is an intermediate level behind the European, West pacific and American regions, there are high overall levels of abstention within the African region (World Health Organisation, 2018). The per capita use limited to drinkers, indicated a much higher level of use, 18.4 litres, (world 15.1 Litres) demonstrating a substantial risk from alcohol among those who drink (World Health Organisation, 2018). However, there are also several other factors related to alcohol use that are not necessarily unique to Africa but that exacerbate the issue of alcohol use and harm. For example, use of unrecorded alcohol, which by definition is difficult to measure, is also expected to be very high in some areas of the African region. As such, any official estimates of alcohol use are considered significant underestimates of the true consumption (World Health Organisation, 2018). Moreover, there is substantial variation in levels of alcohol consumption within the WHO African region and in several countries alcohol consumption is reportedly increasing (World Health Organisation, 2018). A systematic review of alcohol use among young people in eastern Africa found that alcohol use was common, particularly among certain population groups, suggesting that the prevalence of

alcohol use is increasing (Francis, Grosskurth, Changalucha, Kapiga, & Weiss, 2014). Of particular concern within many countries in Africa is the aggressive advertisement of alcohol particularly to youth (Letsela, Weiner, Gafos, & Fritz, 2018; Morojele et al., 2018) , increased availability because of limited enforcement of the minimum legal drinking age of 18 in most countries , and easy access because few countries have restrictions and licensing for alcohol sales (Ferreira-Borges, Esser, Dias, Babor, & Parry, 2015). These are all factors that may exacerbate the current situation and significantly increase the prevalence and incidence of alcohol misuse across the African region (Francis et al., 2015). As such, there is a clear need to strengthen alcohol policies and control and capacity building at the country level in the African region (Ferreira-Borges et al., 2015).

An effective public health response to hazardous levels of alcohol consumption requires a strong evidence base on alcohol interventions. Alcohol interventions are needed at both the population and the individual level – for example, interventions related to alcohol policy (e.g., advertising, price, and availability) and at the clinical level (e.g. motivational interviewing for people with alcohol use disorders) - as both approaches have a role in reducing harm from alcohol use. In order to assess the current state and readiness to address the growing public health concern of alcohol misuse and to plan for the future it is critically important to determine what types of interventions have been implemented and evaluated in SSA. A previous review on brief alcohol interventions (published papers by the end of 2009) in sub-Sahara Africa showed most of the interventions were implemented in East and Southern Africa (Karl Peltzer, 2014). The aim of this scoping review was to map past and ongoing alcohol interventions regardless of their efficacy/effectiveness within SSA to inform the ministries of health, investigators and stakeholders on the state of the existing evidence base on alcohol interventions in SSA. .

Methods

We used a two-step process in identifying and reviewing alcohol interventions in SSA. First, we systematically searched the databases for published manuscripts and protocols regarding alcohol interventions within SSA. Second, we contacted experts, investigators and researchers who are working in the alcohol field through (step two) relevant internet forums: African Networks for Health Research and Development (AFRO-NETS), Health Information for All (HIFA), Kettil Bruun Society-"KBS" and the International Network on Brief Interventions for Alcohol and Other Drugs (Inebria). We requested that investigators share information on their past and current alcohol interventions (*appendix-1*).

Search strategy

We searched six databases (MEDLINE, EMBASE, Global Health, Africa-wide, CINAHL and PsycINFO) for publications prior to June 2018. We used the search terms for alcohol use, alcohol intervention and sub-Saharan African countries' names (*appendix -2*).We combined the alcohol use AND intervention and sub-Saharan African countries search terms. Two authors (JMF and SC) conducted the search independently. Titles and abstracts of all records identified were screened by JMF. Only individual level alcohol interventions conducted (completed or protocols) in 48 countries in sub-Saharan Africa were eligible for inclusion. We used the preferred reporting items for systematic reviews and meta-analyses (PRISMA) extension for scoping reviews guidelines (Tricco et al., 2018).

Data extraction

We used a data extraction form to collect the following information from each eligible paper: i) author(s); ii) year the study was conducted; iii) year of publication; iv) study design; v) sample size; vi) country; vii) targeted population; viii) study settings; ix) alcohol intervention/s; x) maximum follow-up time and xi) primary alcohol outcome/s.

Statistical analysis

In this scoping review, we computed the proportion of the general characteristic of the following variables: countries, type of interventions, study designs employed, targeted populations and the primary outcome(s) of the interventions. We excluded non-intervention studies.

Results

Identified papers

We had very few responses (n=9) from the online forums and all of the reported interventions obtained from these forums were also captured in the published studies which were part of the systematic search. For ease of reporting, our results focus only on the findings as described in the papers based on the systematic search and review of the published literature. The process for identifying and selecting interventions to be reviewed are outlined in Figure 1. The review yielded 6,415 citations, out of which 2,598 (40%) were duplicates. One investigator shared one citation of an intervention. We screened 3,818 citations and identified 59 citations for full article review. After a full review, we excluded 33 articles, as these were interventions carried out in other parts of the world. The analyses are based on the 26 articles (published interventions and protocols) remaining. One study, which entailed

a multi-country study, included samples from both Zimbabwe and Kenya. Table 1 describes the main review results as follows:

Countries that implemented the interventions

Most of the studies were conducted in South Africa (n=19), followed by Kenya (n=4) and Uganda (n=2). One study had been conducted in each of the following countries: Nigeria, Rwanda and Zimbabwe.

Time of the intervention implementation

In this report, the earliest intervention noted, conducted in 1996, was a multinational study conducted by the World Health Organisation(WHO BriefIntervention Study Group, 1996). Most studies (n=14) were completed from 2010 onwards, 5 were completed before 2010, while the date on which the study was conducted (and completed) was not reported in eight cases.

Interventions settings

The intervention settings were mainly health care settings (n=12), followed by communities (n=7), both health care settings and communities (n=4), drinking venues (n=1), a university (n=1) and a health facility and the local media (n=1).

Target populations

In terms of the target population for the interventions, most (n=8) were patients, particularly those living with HIV (n=4). While the remainder consisted of health care providers (n=3), members of the general population (n=3), family members/care givers of HIV-infected patients (n=1), pregnant women (n=4), employees (n=1), university students (n=1), unemployed men (n=1), men in the general population (n=1), and female sex workers (n=1).

Interventions designs

The most frequently noted intervention design were randomized clinical trials (n=13) followed by quasi-experimental (n= 3), and finally cluster randomized trials (n=6), while four papers described the design as "evaluation of the intervention" or "evaluation of the program" (n=4).

Types of the interventions

The intervention types were mostly alcohol screening and brief intervention (n=17), followed by motivational interviewing approach and the remaining involved training of providers (n=3) on how to deliver alcohol interventions and interventions focusing on health education.

Duration of the interventions

While the primary outcomes varied across intervention, most were related to some form of alcohol use reduction and the maximum follow-up time ranged from 8 weeks to 3 years. Three studies had a brief follow-up period of less than six months, with nine studies having a 6-month or 24-week follow-up period, three having a 9-month follow-up period, six having a 12-month follow-up period, and four studies having a follow-up period that was longer than 12 months. One study did not report the follow-up period.

Discussion

This scoping review shows that, to date, there have been few individual level published alcohol interventions in Africa. Intriguingly and similar to the findings of the review on brief interventions in SSA (Karl Peltzer, 2014), most of these interventions were predominantly in one country, South Africa followed distantly by Kenya and Uganda. The existing epidemiology networks and policy efforts may explain the fact that interventions were particularly

implemented in South Africa and Kenya (NACADA, 2018; South African Community Epidemiology Network on Drug Use (SACENDU), 2018). As such, it is also not surprising that the target populations for these alcohol interventions have been mainly people living with HIV due increased funding to carry out HIV research in SSA. Among the identified papers, only one paper reported on intervention among the students (Pengpid, Peltzer, van der Heever, & Skaal, 2013) and one on intervention among female sex workers (L'Engle, Mwarogo, Kingola, Sinkele, & Weiner, 2014), despite a growing body of research demonstrating that sex workers, students, youth living in the slums/informal settings, and casual labourers are high-risk populations for harmful alcohol use (Francis et al., 2014; Francis et al., 2015; Swahn et al., 2011; Swahn, Culbreth, Salazar, Kasirye, & Seeley, 2016; Swahn et al., 2018; Swahn, Culbreth, Staton, Self-Brown, & Kasirye, 2017).

Our review underscores that published and rigorous alcohol use interventions are limited in SSA despite the fact that alcohol consumption is common across the continent (WHO (World Health Organisation, 2018) (3,4). One of the key barriers to progress with respect to alcohol interventions is likely the limited capacity for alcohol-related research and evaluation, training programs or resources devoted to alcohol use research. As such, a key priority needs to be training of clinicians and public health professionals to strengthen capacity for this work and to also engage and to facilitate collaborations across stakeholders and sectors. Within Africa, as in other regions, many non-government and community-based organizations engage in alcohol prevention and intervention efforts. Resources and expertise to implement alcohol interventions are typically limited but if provided, could dramatically increase the state of the field and save lives.

In particular, the training and dissemination of brief interventions and motivational interviewing techniques which have been proven effective and easily scalable in low-income settings (Huis In 't Veld et al., 2012; L'Engle et al., 2014; Naar-King et al., 2008; Pengpid, Peltzer, Skaal, & Van der Heever, 2013; Pengpid, Peltzer, van der Heever, et al., 2013) could be a window of opportunity for the future of alcohol interventions in SSA. However, stigma against alcohol use needs to be addressed more broadly as it has been identified as a key barrier to health-care providers' use of screening for alcohol use (Staton et al., 2018).

With a scoping review like this, there are several key limitations to consider when interpreting our findings regarding alcohol interventions. One of the key limitations of this review is the potential omission of ongoing interventions that have not reached a publication stage or that may have been completed but never published or those not indexed in the searched databases. It is clear that there are many non-government and community-based organizations and clinics that conduct alcohol prevention and intervention efforts, but who may not have the capacity or interest in publishing their work. As such, those efforts cannot be captured in this type of review. However, the intent of the scoping review is to gather an understanding of the types of alcohol interventions that have been implemented and where they have been conducted. Our findings show that SSA has had a few individual level alcohol interventions. In addition, these interventions were polarised in few countries (South Africa and Kenya).

Conclusions

Our review underscores that there is an urgent need to invest in alcohol interventions in SSA due to continued escalation of use fuelled by wide availability and aggressive alcohol marketing, particularly to young people (Letsela et al., 2018; Morojele et al., 2018; Obot,

2015; Swahn et al., 2018) . Alcohol reduction interventions designed for low-resource settings such as mhealth strategies and that can be scaled to larger populations will be key to protect vulnerable groups (Swahn, Braunstein, & Kasirye, 2014). Moreover, it will be critically important to build capacity for alcohol-related research and evaluation, to provide training and resources commensurate with the scope of the problem and to more broadly address this neglected public health problem.

Declarations

Ethics approval and consent to participate:

Not applicable

Consent to publication

Not applicable

Availability of data and material

This is the review article, we have shared the search strategy.

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This project did not receive any funding.

Competing interests

Authors have no competing interests.

Author's contributions

JMF, SC developed the study design, with contributions from MHS and NKM. JMF and SC carried out the systematic searching of the article's citations. JMF reviewed the articles

citation. In addition, JMF, SC and MHS worked on a data collection tools for contacting alcohol investigators and experts. JMF and NKM performed data analysis, with contributions from MHS and SC. All authors took part in the interpretation of the data. JMF, SC, MHS and NKM drafted the article, and all authors provided critical revisions of the article for important intellectual content.

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Figure legend

1. Figure 1: The flow diagram (Identified citation to included papers

Appendices

1. Appendix 1: (Questionnaire for investigators and alcohol experts)
2. Appendix 2: (Search terms)

Table 1: Description of the alcohol interventions in Africa

Author	Publication year	Study year	Study design	Country	Sample size	Study setting	Targeted Population	Alcohol Intervention	Study maximum follow up time	Primary outcome of the intervention
L'Engle et al**(L'Engle et al., 2014)**	2014	2011-2011	Randomized clinical trial	Kenya	818	Community	Female sex Workers	Brief intervention	12 months	Reduced alcohol use
Clair et al**(Clair, 2017)**	2017	Not reported	Randomized clinical trial	Kenya	696	Health facility	Health facilities, health care workers	Online training on alcohol interventions	6 months	Optimal delivery of brief intervention and Reduced alcohol use
Clair et al**(Clair, 2016)**	2016	Not reported	Randomized clinical trial	Kenya	696	Health facility	Patients	Brief intervention	6 months	Reduced alcohol use
WHO Brief Intervention Study Group**(WHO BriefIntervention Study Group, 1996)**[1]	1996	Not reported	Randomized clinical trial	Kenya	200	Health facility and community	Patients and general population	Brief intervention	9 months	Reduced alcohol use
Lasebikan et al**(Lasebikan,**	2017	2010-2011	Quasi experimental	Nigeria	1203	Community	General population	CHW delivered brief intervention	6 months	Reduced alcohol use

Ola, & Ayinde, 2017)										
Chaudhury et al**(Chaudhury et al., 2016)**	2016	Not reported	Randomized clinical trial	Rwanda	295	Community	Family with HIV infected care giver	Family support intervention for HIV	9 months	Reduced alcohol use
Chersich et al**(Chersich et al., 2012)**	2012	2003-2010	Quasi experimental	South Africa	809	Health facility and community	Pregnant women	Education and health promotion	18 months	Reduced FASD and increased knowledge among pregnant women
Peltzer et al**(K. Peltzer, Matseke, & Azwihangwisi, 2008)**	2008	2006-2006	Evaluation of the intervention	South Africa	196	Health facility	Health providers	Training on how to deliver Screening and Brief Intervention	6 months	Implementation of screening and brief intervention
Kalichman et al**(Kalichman et al., 2008)**	2008	2006-2007	Randomized clinical trial	South Africa	353	Drinking venue	General population	Brief intervention	6 months	Reduced alcohol use and other risky behaviours
Marais et al**(Marais et al., 2010)**	2011	2007-2008	Cluster randomized trial	South Africa	194	Health facility	Pregnant women	Brief intervention	8 weeks	Reduced alcohol use
Mwansa-Kambafwile et al**(Mwansa-**	2011	2008-2008	Evaluation of the intervention	South Africa	109	Health facility	Health care providers	Training of the providers on brief	Pre and post training	Knowledge on how to deliver brief

Kambafwile, Rendall-Mkosi, Jacobs, Nel, & London, 2011)								motivational interviewing		motivational interviewing
Gouse et al**(Gouse et al., 2016)**	2016	2008-2010	Evaluation of the program	South Africa	986	Health facility	Outpatients	Standard substance abuse counselling using matrix model	2 years	Urine test for markers of substance use
de Vries et al**(de Vries et al., 2015)**	2015	2009-2011	Quasi experimental	South Africa	67	Health facility	Pregnant women	Motivational interviewing	18 months	Reduced alcohol use
Rotheram-Borus et al**(Rotheram-Borus, Tomlinson, Roux, & Stein, 2015)**	2015	2009-2014	Cluster randomized trial	South Africa	1283	Community	Pregnant women	Alcohol counselling	3 years	Reduced alcohol use and intimate partner violence
Duffett et al**(Lynda Duffett, 2015)**	2016	2011-2012	Evaluation of the program	South Africa	142	Health facility	Outpatients	Motivational interviewing	10 weeks	Substance use scores and abstinence
Burnhams et al**(Burnhams, London,**	2015	2011-2012	Cluster randomized trial	South Africa	325	Community	Employees	Alcohol counselling	3 months	Reduced current alcohol use and binge drinking

Laubscher, Nel, & Parry, 2015)										
Pengpid et al**(Pengpid, Peltzer, van der Heever, et al., 2013)**	2013	2011-2012	Randomized clinical trial	South Africa	152	University	University students	Brief intervention	12 months	Reduced alcohol and other substance use and depression and post-traumatic stress disorders
Huis In 't Veld et al**(Huis In 't Veld et al., 2012)**	2012	2012-	Randomized clinical trial protocol	South Africa	240	Health facility	HIV patients	Brief intervention	12 months	Reduced alcohol use
Parry et al**(Parry et al., 2014)**	2014	2015-	Randomized clinical trial protocol	South Africa	600	Health facility	HIV patients	Motivational interviewing and Problem solving therapy	12 months	Reduced alcohol use and improvement of HIV treatment outcomes
Rotheram-Borus et al**(Rotheram-Borus et al., 2016)**	2016	Not reported	Cluster randomized trial	South Africa	142	Community	Unemployed men	Alcohol counselling	24 weeks	Reduced alcohol use
Kalichman et al**(Kalichman et al., 2009)**	2009	Not reported	Evaluation of the intervention	South Africa	475	Community	Men in general population	Brief intervention	6 months	Gender based violence, Reduced alcohol use

Pengpid et al**(Pengpid, Peltzer, Skaal, et al., 2013)**	2013	2011-2012	Randomized clinical trial	South Africa	392	Health facility	Outpatients	Brief intervention	12 months	Reduced alcohol use
Kalichman et al**(Kalichman et al., 2014)**	2014	Not reported	Cluster randomized trial	South Africa	2487	Drinking venue	General population	Alcohol counselling	12 months	Reduced alcohol use
Rendall-Mkosi et al**(Rendall-Mkosi et al., 2013)**	2013	2007-2008	Randomized Clinical trial	South Africa	196	Health facility and community	Women of child-bearing age	Motivational interviewing	12 months	Alcohol exposed pregnancy
EmenyonuNneka et al**(Emenyonu et al., 2017)**	2017	2011-2013	Randomized clinical trial	Uganda	373	Health facility	HIV patients	alcohol assessments	6 months	Reduced alcohol use
Wandera et al	2017	2013-2014	Randomized clinical trial	Uganda	337	Health facility	HIV patients	Brief motivational interviewing	6 months	Reduced alcohol use
WHO Brief Intervention Study Group**(WHO BriefIntervention Study Group, 1996)**[1]	1996	Not reported	Randomized clinical trial	Zimbabwe	129	Health facility and community	Patients and general population	Brief intervention	9 months	Reduced alcohol use

[1] Multi countries study

Appendix 1 (Questionnaire for investigators and alcohol experts)

	Review of the alcohol interventions in Sub Saharan Africa		
	Variables	**Description of the variable**	**Response**
1	Names of the investigators	*Names of the key investigators(1 and last name e.g,Joel Francis)*	
2	Name of the organisations implementing the intervention	*Names of the organisations*	
3	Type of the organisation	*1. Government 2. Private/Non for profit 3. Both(If multiple organisation)*	
4	Organisations local/international	*1. Local (in country) 2. International 3. Both(Multiple organisation)*	
5	Funding source	*Name of the donor*	
6	Implemented in multiple countries	*1. Yes 2. No*	
7	Name/s of the country/ies	*Names of the countries implementing the intervention*	
8	Current and previous name of the intervention	*Is the intervention based or modified from an intervention with a different name*	
9	Scope of the intervention	*Is the intervention focused mostly on alcohol or part of a broader intervention targeting a range of topics*	
10	Type of intervention	*1. Population level (e.g. policy change) 2. Community level (e.g. school based intervention) 3. Individual level (non clinical) 4. Individual level (clinical) 5. Other please specify*	
11	Design of the intervention	*1. Experimental (Cluster randomized trial) 2. Experimental (Randomized control trial) 3. Quasi-experimental 4. Other please specify*	
12	Target population	*Please specify in as much detail as possible age group, gender, particular group e.g. pregnant mothers, alcohol dependent patients)*	
13	Female focus	*1. Yes 2. No*	
14	Male focus	*1. Yes 2. No*	
15	Date of the intervention commencement	*Month, year e.g, March, 2016*	
16	Date/tentative of the end of intervention	*Month, year e.g, March, 2017*	
17	Description of the intervention/s	*detail the intervention (type of intervention, dosage, follow up)*	

18	Aims of the intervention	*Eg. To determine the effect of brief intervention on alcohol consumption.*	
19	Measured Outcomes	*Eg. Decreased alcohol consumption*	
20	Measurement of alcohol use	*Please provide details of how alcohol use measured at the start and end of the study*	
21	Project report available	1. Yes 2. No	
22	Is the report published	1. Yes 2. No	
23	Name of the Journal	1. Yes 2. No	
24	Date published	*Month, year e.g, March, 2016*	
25	Can you share the unpublished report	1. Yes 2. No	
26	Can we contact you for further details of your project	1. Yes 2. No	
27	Contact details	email, phone number	

Appendix 2(Search terms)

Alcohol use

Alcohol OR Alcohol consumption

AND

Interventions

(Alcohol reduction OR Brief intervention OR Early intervention OR Minimal intervention OR Alcohol therapy OR Harm reduction OR Screening OR Counseling OR Controlled drinking OR Brief counseling OR Physician based intervention OR General practitioner intervention OR Secondary prevention OR General practitioner's advice OR Brief physician-delivered counseling OR Brief nurse-delivered counseling OR Identification OR Intervention)

AND

Africa Search terms

Africa[Mesh] OR "Africa South of the Sahara"[Mesh] OR "sub-Saharan Africa"[All Fields] OR "Africa"[All Fields] OR "African"[All Fields] OR "Angola"[All Fields] OR "Benin"[All Fields] OR "Botswana"[All Fields] OR "Burkina Faso"[All Fields] OR "Burundi"[All Fields] OR "Cameroon"[All Fields] OR "Cape Verde"[All Fields] OR "Central African Republic"[All Fields] OR "Chad"[All Fields] OR "Comoros" "[All Fields] OR "Congo"[All Fields] OR "Congo-Brazzaville"[All Fields] OR "Republic of Congo"[All Fields] OR "Democratic Republic of the Congo"[All Fields] OR "Djibouti"[All Fields] OR "Eritrea"[All Fields] OR "Ethiopia"[All Fields] OR "Equatorial Guinea"[All Fields] OR "Gabon"[All Fields] OR "Gambia"[All Fields] OR "Ghana"[All Fields] OR "Guinea"[All Fields] OR "Guinea Bissau"[All Fields] OR "Ivory Coast"[All Fields] OR "Cote d'lvoire"[All Fields] OR "Kenya"[All Fields] OR "Lesotho"[All Fields] OR "Liberia"[All Fields] OR "Malawi"[All Fields] OR "Mali"[All Fields] OR "Mozambique"[All Fields]

OR “Madagascar”[All Fields] OR “Mauritania”[All Fields] OR “Namibia”[All Fields] OR “Niger”[All Fields] OR “Nigeria”[All Fields] OR “Rwanda”[All Fields] “Senegal”[All Fields] OR “Sierra Leone”[All Fields] OR “Seychelles” [All Fields] OR “Somalia”[All Fields] OR “South Africa”[All Fields] OR “Sudan” [All Fields] OR “South Sudan” [All Fields] OR “Swaziland”[All Fields] OR “Tanzania”[All Fields] OR “Togo”[All Fields] OR “Uganda”[All Fields] OR “Zambia”[All Fields] OR “Zimbabwe”[All Fields].