

**EXPERIENCES OF HEALTH RESEARCH STAKEHOLDERS WITH
INTERNATIONAL HEALTH RESEARCH COLLABORATIONS IN ZAMBIA**

By

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**A dissertation submitted in partial fulfilment of the requirements for the degree of
Master of Public Health in Health Promotion and Education**

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DECLARATION

I, **Tulani F.L Matenga** declare that this dissertation submitted to the University of Zambia as partial fulfilment of the award of the degree of Master of Public Health (Health Promotion and Education) is my own work and has not been submitted either wholly or in part for another degree to this University or any other or Institute for higher education.

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ABSTRACT

The promotion of collaborative partnerships involving researchers and institutions from Low- and Middle-Income Countries with those from High-Income Countries has been a major development in health research. While these initiatives have shown great promise and attracted growing interest, research examining the processes that improve or hinder joint working and the inner workings of international health research collaborations has been limited. The study aimed to explore the experiences of health research stakeholders with international health research collaborations.

A qualitative phenomenological inquiry was employed using In-depth interviews with 20 key informants involved in North-South health research partnerships conducting health research activities in different parts of Zambia. Thematic analysis was used to analyse the data with the aid of Nvivo 12 data management software.

The findings of this study revealed that partnerships produce benefits for Southern partners which include generating of evidence to influence policy, improved service delivery, infrastructure development and designing of interventions to improve the healthcare of populations in most need. Most importantly through partnerships, there is the availability of financial resources to accomplish partnership goals. To enhance international health research partnerships, effective communication, local leadership, values, and accountability were identified as important in the process of partnership functioning. Trust interacts with different elements that create partnerships where there is co-ownership of study rewards. When this trust has been created, more opportunities for partnerships are formed. Negative loops of interaction in health research collaborations are largely due to funding mechanisms where ninety percent of the funding for health research is from Northern partners. This funding mechanism results in power imbalances that lead to publication challenges, dictation of research agenda and ownership of samples and data leading to misunderstandings between partners and a general lack of motivation to collaborate.

The study highlights the importance of international health research collaborations and its many benefits which include strategies to address community health challenges through the supply of ideas, translating research into interventions and designing health strategies. Challenges experienced result from unequal power relations where most of the funding comes from Northern partners. Acknowledging and reporting both positive and negative processes maximises learning in health research collaborations and highlight areas that partnerships need to focus on to make the most of joint workings.

Keywords: Health Research, Successes, Challenges, International collaboration, Power-sharing, Trust and Transparency

DEDICATION

To my late brother Radoka Matenga and uncles Dr Lenox Msanide and Emmanuel Mwamba
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ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
BMCF	Bergen Model of Collaborative Functioning
COHRED	Council on Health Research for Development
CRCT	Cluster Randomized Controlled Trial
EDCTP	European and Developing Countries Clinical Trials Partnership
HICs	High Income Countries
HIV	Human Immunodeficiency Virus
LMICs	Low- and Middle-Income Countries
MOH	Ministry of Health
NHRAC	National Health Research Advisory Committee
NCST	National Council of Science and Technology
NGO	Non-Governmental Organization
NSP	North-South partnerships
OECD	Organisation for Economic Co-operation and Development
SDGS	Sustainable Development Goals
SMC	Safe Male Circumcision
UTH	University Teaching Hospital
UNZA	University of Zambia
UNZABREC	University of Zambia Biomedical Research Ethics Committee
WHO	World Health Organization

CHAPETR 1: INTRODUCTION

The purpose of this chapter is to introduce the subject matter of this dissertation. It will briefly summarize the focus and purpose of the research, provide an overview of its relevance within the field of Public Health, define the concept of collaboration adopted in this study and provide a background to the study.

International health research is research conducted in low-and-middle-income countries (LMICs) with funding from institutions and organisations in high-income countries (HICs) (Munung et al., 2017). This kind of research comes with many benefits such as cross-cutting research to reduce the disease burden in many poor resource settings. Despite the potential of international health research to reduce global inequities in healthcare, it also has the potential to exploit research participants and African researchers (Benatar, 2001 & Bhutta, 2002). Literature that explores partnership functioning and views of public health practitioners and researchers from developing countries has been underrepresented (Bhutta, 2002). This dissertation thus contributes to the body of knowledge on health research collaborations in developing countries. It explores the experiences of health research stakeholders with international health research collaborations in Zambia. Often used synonymously with partnership, collaboration is a process through which parties who see different aspects of a problem can explore constructively their differences and search for solutions that go beyond their own limited vision of what is possible (Gray, 1989).

1.1 Background Information

At the turn of the millennium, LMICs accounted for 85% of the world's population, 92% of the global disease burden, but only 10% of global funding for health research was devoted to addressing these persistent health challenges (Global Forum for Health Research, 2000). Recognition of this '10/90' gap has led to renewed calls to strengthen the research capacity in developing countries through health research collaborations between countries of the global North and South (Edejar, 1999).

The concept of collaboration in health research is relatively new and replaces earlier concepts characterised by parachute or postal research whereby researchers from HICs come to Africa just for data and samples and then disappear once samples have been collected (Okwaro and Geissler, 2015). It also replaces a model in which relations are hierarchical, with the Northern funders having control and the Southern having only an implementation role (Ashman, 2001).

The move from hierarchy to partnership is meant to result in more equitable and socially responsible forms of North-South collaboration (Brehm, 2004).

Establishing health research systems enables countries to capitalise more effectively on the supply of ideas, translate research into effective interventions and design resilient health strategies (Franzen et al., 2016). In order to improve the research capacity in developing countries, many organisations have invested financial resources to improve health research systems through the development of initiatives such as those in genetic studies and developing statistical techniques and technological requirements for the analysis of large datasets (Parker and Kingori, 2016). These major funding initiatives from Northern governments and organizations for research on diseases such as HIV/AIDS, malaria, and other neglected diseases have increased due to the inability and reluctance of African governments to fund scientific research and healthcare (Okwaro and Geissler, 2015).

However, there are challenges in achieving equitable partnership when resources and power are unevenly distributed (Walsh et al., 2016). These partnerships also bring potential problems and controversies, as they are often complex and difficult to achieve and maintain (Katisi et al., 2016). Publication authorship, the named principal investigators, staff remuneration policies, tax exemption for foreign researchers and the ownership of samples and data have all been presented as areas where difficulties exist and undermine equal collaborations (Crane, 2010; Okwaro and Geissler, 2015; Parker and Kingori, 2016; Walsh et al., 2016). Consequently, it is argued that North-South partnerships still experience challenges largely caused by power imbalances (Corbin and Mittelmark, 2008; Corbin et al., 2013).

Scholars describe these challenges in different ways, placing emphasis on the power of the North over the South. These scholars use different concepts to express this power among them: the new imperialism – the North's new way of extending its power (Dean et al., 2015) and unbalanced power relations (Oliver et al., 2016; Walsh et al., 2016). Crane (2010), takes a step further by calling North-South partnerships a decolonisation of the South which creates intellectual dependency. This has been accompanied by growing debates on the ethics of conducting health research amid challenges of equity and concerns of post-colonial science in Africa (Costello and Zumla, 2000; Muldoon et al., 2012).

Spending on health research in many LMICs is inadequate with an estimated 90 percent of the funding coming from external sources. For the most part, these funds are sent directly to research institutions, usually without an explicit requirement that the research be aligned to national health priorities (Walsh et al., 2016). This has affected global health priorities, including which research agendas are funded, for which target populations are health interventions designed, and how the costs, risks, and benefits of research are shared (Ward et al., 2018). In this way, partnership approaches have sustained old ghosts: north-south dependency, distorted health research priorities, weak and unprepared healthcare systems, underutilised local professionals and knowledge, unfair distribution of risks and benefits and insufficient access to life-saving interventions for populations most in need (Franzen et al., 2016). Such factors destabilise regional development, health equity and the health of populations suffering from both endemic disease and poverty (Lee and Asagba, 2014).

These insights highlight the importance of distinguishing between true, well-managed and ethically sound collaborations, which have prompted many initiatives to characterise good collaborative research practice to ensure fair and equitable health research collaboration (Parker and Kingori, 2016). These include the RAWOO Principles (RAWOO, 1991), the Canadian Coalition for Global Health Research (Afsana et al., 2009), the Swiss Commission for Research Partnership with Developing Countries (Swiss Commission for Research Partnerships with Developing Countries, 2012), the COHRED Research Fairness Initiative (COHRED, 2017), and the Council for International Organisations of Medical Sciences (CIOMS) Ethical Guidelines (Council for International Organisations of Medical Sciences, 2016). These guidelines have increased amid calls for conducting ethically sound research in developing countries.

Although much has been written about partnerships challenges, relatively little is known about the inner workings of international health research collaborations and about the processes that improve or hinder joint working (Weiss et al., 2002; Corbin et al., 2013). This debate has largely taken place among ethicists and researchers in industrialised countries. The views of public health practitioners and researchers from developing countries have been underrepresented (Ashman, 2001; Bhutta, 2002; Parker and Kingori, 2016) and tends to be pessimistic, comparing real-world experience to idealised and value-laden concepts of what North-South collaborations should be (Brehm, 2004).

To address this gap, a qualitative research study was conducted with stakeholders involved in international health research collaborations in Zambia's Lusaka district focusing on partnership arrangements. Perspectives were from those tasked with building and maintenance of effective health collaborations on a day-to-day basis who included principal investigators, project managers/coordinators, clinical researchers, laboratory managers, health researchers in academic institutions and regulators from the ministry of health and ethics committee members.

1.2 Statement of the Problem

Although collaboration can be tremendously advantageous, many of them struggle to make the most of the collaborative process and accomplish their goals (Weiss et al., 2002). This challenge is not so much a limitation in the science but also an outcome of social and structural inequality (Denburg, 2016). This social and structural inequality has affected global health priorities, including which research agendas are funded, for which target populations are health interventions designed, and how the costs, risks, and benefits of research are shared (Ward et al., 2017).

Research examining the inner workings of international health research collaborations reveals complicated relationships that lack close resemblance to the collaboration at the global level. In practice, collaborative work can be complex and challenging and these assumptions are rarely tested in empirical research (Corbin et al., 2013). The published literature on such collaborations does not provide detailed insight into the inner workings of international health research collaborations and about the processes that improve or hinder joint working (Weiss et al., 2002; Corbin et al., 2013). Where discussed, these insights are often from self-evaluations or reflections and as such may underplay inequalities in North-South health research collaborations (Walsh et al., 2016).

This problem points to a need to carry out methodologically sound research on collaboration with clearly defined parameters and concepts to enable rigorous, consistent and comparable examination across diverse collaborative arrangements. As the region increases its participation in health research, it is important to understand the functioning of collaborations by exploring experiences of health research stakeholders with international health research collaborations from the experiences of those involved.

1.3 Study Justification

A substantial amount of literature has grown around issues of informed consent, social value and benefit sharing, power and equity, community engagement, data sharing and export of biological samples. Despite the growth of interest in the ethical implications of international health research collaborations and its practical implications in developing countries, little research has been undertaken to explore the experiences of health research stakeholders with international health research collaborations representing African researchers (Parker and Kingori, 2016). This study, therefore, sought to fill in the gap in literature on North-South health research collaborations by exploring the experiences of health research stakeholders with international health research in Zambia, add to the body of knowledge and provide some groundwork, which could be the basis for further, expanded research.

Major strides have been made at the level of policy by the government to provide a regulatory framework to regulate health research in Zambia (National Health Research Act, 2013). Currently, the National Health Research Authority, established under the Health Research Act No. 2 of 2013, is mandated to provide a regulatory framework for the development, regulation, financing, and coordination of health research to ensure the development of consistent health research standards and guidelines for ethically sound health research in Zambia. Its functions include research promotion, research regulation, research coordination, research capacity building, and research dissemination and knowledge translation (Chanda-Kapata et al., 2012). This study may, therefore, help to strengthen the Act of 2013 by contributing to the debates on developing guidelines that reflect the unique ethical issues arising in international health research collaborations such as the storage of biological samples and sharing of samples and data in health research collaborations. In addition, such a study may enable effective linkages in balancing the priorities and roles of multiple partners to ensure best practices in collaborative partnerships.

1.4 Research Question

What are the experiences of health research stakeholders with international health research collaborations?

1.5 Research Objectives

1.5.1 Main Objective

To explore the experiences of local health research stakeholders with international health research collaborations in Zambia.

1.5.2 Specific Objectives

1. To explore the roles and responsibilities of southern partners in health research collaborations
2. To examine power-sharing and trust in North-South health research collaborations
3. To explore factors that contribute to antagonism in North-South health research collaborations
4. To explore factors that promote synergy in North-South health research collaboration

1.6 Organisation of Dissertation

This dissertation is divided into 6 chapters. Chapter one is an introduction of the research topic and discusses the statement of the problem and justification of the study while also outlining the research aim, objectives and questions as well as the organisation of the dissertation. Chapter two reviews the literature on health research collaborations in general and Zambia in particular and outlines the theoretical framework guiding the study.

Chapter three is a reflection on the research design and methodology used in the study. It discusses the research strategy and approach to the methods used. The chapter then outlines the actual research methods, sampling methods and data collection tools used as well as the methods of data analysis. Chapter three further discusses ethical concerns and limitations of the study. Chapter four presents the empirical findings of the study using the theoretical framework and discusses implications for policy and practice.

Chapter five discusses the study findings in relation to literature and the theoretical framework. Lastly, chapter six presents a conclusion of the study and makes recommendations.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The previous chapter laid the basis for understanding international health research collaborations. This chapter further illuminates the background relevant to this study by providing an overview and discussion of the empirical findings on international health research collaborations and provides gaps in the current knowledge that warranted further research.

Authors such as Corbin and Mittelmark (2008), used their results for exploring a Global Program for Health Promotion Effectiveness to develop a systems model they call the Bergen Model of Collaborative Functioning (BMCF). When exploring the partnership in a Norwegian hospital's nutrition innovation, Corwin (2012) established that funding was the source of contention and complicated functioning. Corbin and Mittelmark called this “antagonism” and therefore introduced it as a unique type of output, in addition to synergy and additive results, representing unwanted and worrying outcomes (Corbin & Mittelmark, 2008, p. 365). Their findings reveal that antagonism can affect partnerships negatively as partners see such investment as a waste of time and resources. Elements that caused antagonism included power projected by the North over the South, one-way communication and unrealistic demands on local partners by the Northern partners (Corbin & Mittelmark, 2008; Corbin et al., 2013, Katisi and Daniel, 2018). However, they also observe that antagonism can improve a partnership if partners reflect, learn from their mistakes and work on improving its working (Corbin & Mittelmark, 2008; Katisi et al., 2016).

What is further established is that as much as synergy in partnerships is both a process and a product (Lasker et al., 2001; Weiss et al., 2002; Jones & Barry, 2011), antagonism is also not only an eventual outcome but part of partnership processes that keeps feeding back into the collaborative activities. They argue that partners join efforts to meet certain goals and wish for the partnership to produce synergy (Jones & Barry, 2011). However, when there is antagonism, partners could be willing to learn from their mistakes and improve their collaboration. When testing its utility in a North-South collaborative partnership in Tanzania, Corbin et al, (2013) note that antagonism emanates from lack of trust of the Northern partners on the Southern partners; contentions on capacity building and skills sharing; diverse reporting systems used by different Northern partners drained the Southern partners; as well as inconsideration of what is appreciated as good service in the local context. Their

conclusion is that the BMCF framework can be used in many facets of partnership functioning and appeal for research that can utilise this model to help partners learn and possibly improve their collaborations (Corbin & Mittelmark, 2008).

2.2 Power Relations in International Health Research

2.2.1 Power Dynamics

The majority of studies on international health research collaborations identify power relations as a key issue. This power imbalance appears in literature related to negative processes in agenda-setting, accountability, transparency, and reporting.

A study by Crane (2010), using ethnographic data collected at the meetings of the Consortium of Universities for Global Health within U.S.-Uganda research collaboration, Crane found that lack of attention to the meanings and activities taking place in the name of partnership risks obscuring the diversity of arrangements and complex power dynamics at stake. Oliver and colleagues (2016), describe asymmetries in power being linked to perceptions of unequal knowledge, competence, and resources that confer advantages to some partner. They concluded that funding for research is often obtained through grants from Northern governments, funding councils or foundations, placing researchers from the North in positions of advantage with regard to research design and planning.

In a case study involving interviews with fifty-three Zambian researchers, national stakeholders and Northern researchers who had been involved in public health research collaborations involving Zambia and the global North, Walsh, and colleagues (2016), found that power was related to economic capital. Specifically, their respondents felt pressured to accept Northern initiated research partnerships in order to increase their economic capital, even though the agenda did not accord with Zambian priorities. Their findings suggest that funding mechanisms where financial resources flow solely through the North would ensure that power remains with the North, no matter how much possession of other capitals shifts to either a state of equilibrium or in favour of Zambian researchers.

Another study by Dean et al, (2015) exploring what factors contribute to successful research partnerships and are likely to promote such on-going collaborations using a mixed-method retrospective evaluation approach. Fifty individuals were purposively selected to participate in interviews or focus group discussions from twelve different institutions in HICs and

LMICs. This study revealed that African institutions had limited or no power in deciding when and how funds were spent.

Corbin et al (2013), on the other hand, using a case study to examine the experience of the Tanzanian women's non-governmental organisation (NGO) in the Kilimanjaro region describes an exchange of power between Northern and Southern partners. Participants described dynamic power relations depending upon the activity. Southerners have the power to accept or reject partners and activities in accordance with its strategic plan. Northern partners, on the other hand, control funding and are therefore in a position to demand a degree of communication, accounting and reporting to track the use of those funds. Rather than resenting this, the participants interviewed in this study felt comfortable with this interdependency.

Corbin et al, and Oliver et al, view collaborations from an organisational view, however, the act of collaborating is undertaken by the individual. Contrary to the existing reliance on organisational structures and fixed scientific theoretical underpinnings associated with it, phenomenology offers an approach of variability that allows focussing on the particular versus the reality for constructing the social world around us.

2.2.2 Delegation of Roles and Responsibilities

A study by Murphy et al, (2015) using a multi-regional consultation to capture the experiences of stakeholders in South Asia, Latin America, and sub-Saharan Africa reveals that partners from low resource settings were relegated to tasks well below their capacity and excluded from opportunities to publish or present findings. Similarly, interviewees in Parker and Kingori's study (2016), expressed concern of being relegated the role of "a glorified field worker" responsible for collecting data but being excluded from the creative science.

Canario Guzmán et al (2017), conducted a qualitative case study to identify the challenges and opportunities facing the Dominican Republic with regards to developing international collaborative research partnerships in the context of the Zika outbreak and its ethical implications. Participants in this study alluded to their lack of involvement in the study design as researchers and being considered mostly as data collectors. A study by Jentsch and Pilley (2003) also revealed that Southern partners are the active participants in all research activities from designing to data collection and producing the first draft of the report. By using those findings, the Northern partners put themselves as first authors, and publish one

paper after another. It appears that the South is the data collector and the North steals those data and takes advantage of it.

Contrary to the popular use of the term collaboration, some scientists in Okwaro and Geissler's study (2015), objected to the use of this term, suggesting that the term was applied to institutional forms that were not altogether different from earlier unequal modes of conducting science in Africa. Okeke (2016 p.461) on the other hand terms this relationship the "Little brother effect" where the Older Brother, who continues to be appreciated for being a caring and committed relative, is constantly in supervisory mode and his only objective is to have the little brother perform stated and specific tasks. The relationship remains stuck largely because the senior never looks beyond the performance of these tasks for intellectual contributions.

2.3 Partnership Processes and procedures

2.3.1 Successes and challenges

In a survey by Baron-Epel et al (2003), fifty-two health professionals completed a questionnaire with a Likert scale measuring factors motivating, enhancing and inhibiting partnerships. The three most important facilitating factors identified were related to project management: effective leadership aims of the project and sharing a vision and goals. Similarly, in a qualitative exploratory study by Ward et al, (2017) to capture and analyze how health research for development is understood from the perspective of various stakeholders working in an international collaborative, in Ghana and Tanzania, respondents emphasised that communication, professional recognition, and community engagement are key aspects of equitable partnerships.

Another study by Parker and Kingori (2016), reveals that factors influencing Southern partners' decisions whether or not to join collaborative research networks when invited to do so and whom to invite to join research collaborations they initiate was their assessment whether the proposed collaboration offered them the opportunity to be actively involved personally in cutting-edge, interesting and outstanding science. Meanwhile, Lasker et al, (2001) reveal that partners in collaborations are resources themselves. They use skills, connections, and credibility in order to reach the goal of collaboration and to obtain external funding and support.

In a study by Dean et al (2015), exploring what factors contribute to successful research partnerships and likely to promote such on-going collaborations using a mixed-method

retrospective evaluation approach. Several researchers and administrative award staff pointed out that allowing African partners to have financial control would create partnerships that are more equitable. On the other hand, leadership with strong relationship skills to foster respect, trust, inclusiveness, and openness among partners fosters success in partnerships (Lasker et al., 2001).

There are dissenting voices in the above findings and a general lack of understanding of what constitutes successful collaborations in health research. It is for this reason that calls for further studies to show evidence on processes that improve or hinder joint working of the collaborations and examine the inner workings of international health research collaborations from the Southerner's perspective have been called for.

2.3.2 One-way accountability

Harrison (2002), conducted an ethnographic study of partnership and participation among stakeholders in Ethiopia and found that accountability and transparency in North-South relations was a 'one-way' street with demands flowing from North to South. A case study of a North-South partnership between Global Fund and two local NGOs in Cambodia with the aim of improving reproductive health among military couples found that dominant representations and the donor's demand for reports and high targets encouraged a relationship of instruction and control (Aveling et al., 2014). Mommers and van Wessel's (2009) findings showed that lack of information regarding funding from international partners available to Southern partners left them uncertain and anxious about their partnerships.

Further, research suggests that an important obstacle to equity in international collaborative relationships concerns the internal policies and procedures of Northern partners. In a comparative analysis of four cases of partnership in Kenya and Ethiopia, Ashman (2001), found that internal systems for financial and management control were a significant barrier to improving international collaborative effectiveness. She reports that within her cases the systems were oriented more toward ensuring accountability according to agency theories rather than adhering to collaboration theories emphasising the importance of mutuality.

2.4 Inequality and political-economic interest in health research collaborations

2.4.1 Fairness and Equity

Another key issue in international health research collaborations is fair and equitable partnerships that require that researchers in low-income settings are treated with respect as equal partners (COHRED, 2013). This can be challenging to achieve when there are great

disparities in resources and capacity. One area in which issues of fairness and equity are of particular importance is data sharing (Parker and Kwiatkowski, 2016). A common practice in international health research collaborations is the claiming of exclusive data or sample ownership by high-income partners, even though the data have been collected from participants in LMIC populations (COHRED, 2017). A study by Denny et al (2015), in South Africa, reveals that some senior stakeholders felt anxious that data sharing might resemble neo-colonialist behaviour where the raw materials are taken out of the country and the beneficiation happens outside.

A great deal of public support for sharing of data was also identified by Bull et al (2015), as participants identified trust, the minimising of harm, fairness, and reciprocity as key requirements for the support of data sharing in international health research collaborations. On the other hand, Parker and Kingori, (2016) found that worries about fairness can arise in several different ways including the lack of recognition of expertise and scientific roles of less visible partners. For many African researchers, a less than ideal connection is better than none at all because it is a way to get things done (Okeke, 2016).

Okwaro and Geissler (2015), emphasise a statement from an East African scientist who describes his best collaborations as those where he is allowed to be the principal investigator, suggesting that his collaborative role is one that he cannot negotiate. These ethnographers and Crane (2013), also document multiple clinical collaborations in which the Northern partners contribute financially and intellectually while the African scientists offer only sites, patients and logistic support. These descriptions are from HIV clinical research, from some of the most successful and best-funded scientific initiatives in Africa.

2.4.2 Culture of aid and colonialism

Anthropologists note that even though modern North-South science partnerships are often cast as balanced relationships; the Northern partners often find themselves playing a paternalistic role that resembles colonial hegemony (Geissler 2013). The colonial hegemony described by literature highlights a concept known as ‘parachute research’ (Ndebele and Musesengwa, 2008), where fully equipped research teams from other countries arrive at the site where research is needed, conduct their research independently of others, and then leave. A study by Heymann and colleagues (2016), revealed that during the Ebola epidemic in some West African countries, international researchers are said to have charted specimens away

from the affected countries without any form of oversight or recourse to local regulations or regulators.

Another study by Muldoon et al (2012), in Uganda, supporting several successful research projects to document North-South research collaborations and providing insight into the ongoing benefits and challenges of engaging in the research process from the Southern perspective revealed that North-South collaborative research partnerships present benefits and challenges to Southern researchers. This study highlights the existence of neo-colonial dynamics within North-South research partnerships that minimised Southern partners' engagement. Accordingly, many North-South partnerships are criticised for remaining semi-colonial in nature, as the control and benefits of research (e.g., publications, results, research skills, etc.) continue to accrue in the North (Jentsch, 2004).

Walsh et al (2016), in Zambia using Bourdieu's theory of power to provide a possible explanation for why power differentials continue to exist in North-South collaborations, reveals that work practices and approaches by Northern partners can be linked to the culture of aid and colonisation. Jentsch and Pilley (2003), examining processes and dynamics within North-South collaborations in health research through two different case studies bringing together research teams from Britain and Bangladesh and a doctoral study where a British student conducted fieldwork in Thailand and Bangladesh. This study reveals that relationships in North-South health research partnerships can be linked to post-colonial science that is embedded in the history of colonialism between the partners. Such dynamics have parallels with the European folktale of Cinderella and the Ugly Sisters, the latter using their advantage of wealth and position to exploit their stepsister (Jentsch and Pilley, 2003).

International health research has often been portrayed as a form of development aid, where the receiver is expected to show some gratitude to the giver which portrays international health research as a patronising and neo-colonial activity (Munung et al., 2017). It has nonetheless, been pointed out that African researchers are increasingly judging these collaborations as being of mutual benefit to all partners, and as a result want their HIC collaborators not to treat them as employees but as partners. This calls for further research on the experiences of health research stakeholders with international health research collaborations.

2.5 Involvement of local researchers in health research collaborations

2.5.1 Agenda and priority setting

Scholars in the social sciences, bioethics, public and community health, and other fields have recently urged that international health research demonstrate greater relevance to the priority of local needs, concerns, and interests (Benatar, 2001; Bhutta, 2002; Emanuel et al., 2004). As recipients of resources for health research, Southern partners in most are cases not able to set the research agenda. They may be able to come up with what they would consider as research priority areas. The donors who provide the financial resources set these priorities according to their interests. This may destabilise regional development, health equity and the health of populations suffering from both endemic disease and poverty (Ward et al., 2018).

Simon and colleagues (2007), offer a critical examination of the concept of relevance in international health research, through the lens of research conducted in a resource-poor community in South Africa. They describe their focus on cervical cancer as too narrow and limited and illustrate the community's articulation of a set of interests, needs, and concerns that was significantly at odds with their study's narrowly conceived ideal. Similarly, Jentsch and Pilley (2003), revealed that research conceived in the North was a lesser priority to local settings, with consequent reductions in the motivation to participate, at least initially.

On the other hand, Lairumbi et al (2008), in Kenya conducted forty in-depth interviews to explore the role of collaborative partnerships in health research priority setting and the way in which research findings are disseminated to aid policy making and implementation. The study focused on research agenda setting and how the efforts to disseminate findings affect their social value. Contrary to the above findings, Stakeholders in this study reported that the policy agenda for health was determined based on the morbidity and mortality data from the health facilities in the country and other sources of data such as the Kenya Demographic and Health Survey. Meanwhile, a study by Katisi et al, (2016) found that key influences in the success or failure of partnerships are financial resources, 'ownership' and the target. These findings of the partnership between the government of Botswana's Ministry of Health and two international organizations, demonstrate how ownership of programs, contextualised knowledge, partnered with priorities of Southern partners, can solve real problems that may have been overlooked by each of the actors working alone.

2.5.2 Capacity building

Globally, Southern countries continue to host research led by Northern researchers, while struggling to build the necessary capacity for Southern-led research (Crane, 2010). Surprisingly, the South bear the greatest burden of the world's health problems and they are the least capable of finding appropriate solutions to them (Nchinda, 2002). Research capacity in the South remains one of the world's unmet challenges (Ward et al., 2018). The objective of capacity building is to develop individuals, organisations and societies (individually and collectively) to perform functions, effectively, efficiently and in a sustainable manner to define objectives and priorities, build sustainable institutions and bring solutions to critical national problems (UNDP, 1998).

A major concern over the years has been that despite increased investment in research programmes with multiple international partners, there is still less advancement in LMICs accruing their own research capacity and strengthened systems of health to protect their populations, as Ogundahunsi et al (2015) notes. Respondents in Parker and Kingori's study (2016), considered capacity building as crucial, and its absence in collaborations viewed very negatively. The term 'capacity building' in this study, was understood as the potential for opportunities to increase scientific competence and expertise of both experienced and younger scientists, to gain locally important added value more generally from participating in research.

The discourse on capacity building in North-South health research partnerships is rife with reports of lack of capacity building for Southern partners but this is not the only perspective. A dissenting voice is that of Muldoon (2012), who argues that the assumption implied in many collaborative studies that capacity needs to be built in the South while Northern researchers are always 'perfectly qualified' does not hold. It undermines the opportunity for change when Northern personnel, as 'capacity providers' are unable to admit to need, and Southern researchers, as 'receivers', are not acknowledged for existing capacity. The situation is exacerbated if the message is that Southern need is caused by inferiority of abilities rather than simply a skill or technology deficit (Muldoon, 2012). Aveling and colleagues (2014), in their study in Cambodia, noted out that international partners tended to represent its local partners as lacking capacity in programme management. Reflecting a hierarchical positioning of self and local-partners-other, the international partner represented themselves as possessing all the necessary skills, knowledge and experience to successfully implement

interventions. Interactions evidenced little recognition for the expertise local partners could contribute.

To ensure the best results from these partnerships, practice needs to be guided by rigorous research on functioning. Unfortunately, there are major weaknesses in much of the existing literature on health research partnerships. The first weakness in the literature is that the debate on collaborations is largely taken place within industrialised countries as noted from the above literature with little from the Southern partners who are actually involved. Secondly, most of the literature has focused on one side of the collaboration either looking at the challenges or the benefits with little on the actual experiences on both challenges and successes, which can be used to provide practical and relevant lessons for both partners. This general lack of understanding of what constitutes success or failure in health research collaborations warranted the need to conduct a study to show evidence on processes that improve or hinder joint working in collaborations and examine the inner workings of international health research collaborations from the Southern perspectives.

2.6 Theoretical Framework on Partnership Functioning

The Bergen Model of Collaborative Functioning (BMCF) provides an analytical frame for examining collaborative arrangements (Corbin and Mittelmark, 2008; Corbin et al., 2012; Corbin et al., 2013; Corbin et al., 2016). The BMCF depicts the inputs, throughputs, and outputs of collaborative functioning as cyclical and interactive processes within the system (see Figure 1). The inputs to a partnership are its mission, partner resources, and financial resources. Mission refers to the agreed-upon approach of the partnership to address a specific problem, issue or situation. Partner resources refer to the skills, knowledge, power, commitment, connections and other attributes that human resources contribute to the partnership. Financial resources encompass all monetary and material investments in the partnership (Katisi et al., 2016).

The throughput section is the collaborative context. Inputs enter this context and interact positively or negatively as they work on the maintenance (administrative tasks) and production (relating to the collaborative mission) activities of the partnership. The collaborative context is shaped by the interaction of four elements: the inputs themselves as they engage in work, the leadership, roles and procedures, and communication. These four elements can interact positively or negatively creating dynamic and reinforcing cycles within the collaborative context (Corbin et al., 2016).

The outputs of the collaborative context may be synergy and/or its opposite antagony, in which the cost of partnership are perceived to outweigh the benefits (Corbin and Mittelmark, 2008). The term ‘synergy’ is often employed to describe the multiplicative interaction of people and resources to solve problems that cannot be tackled by any of the partners working alone, which adds to the partnership (Corbin and Mittelmark, 2008; Corbin et al., 2013; Katsi et al., 2016). In the Model, an arrow from synergy feeds back into the collaborative context indicating the positive impact success (achieving synergy) can have on functioning and input recruitment.

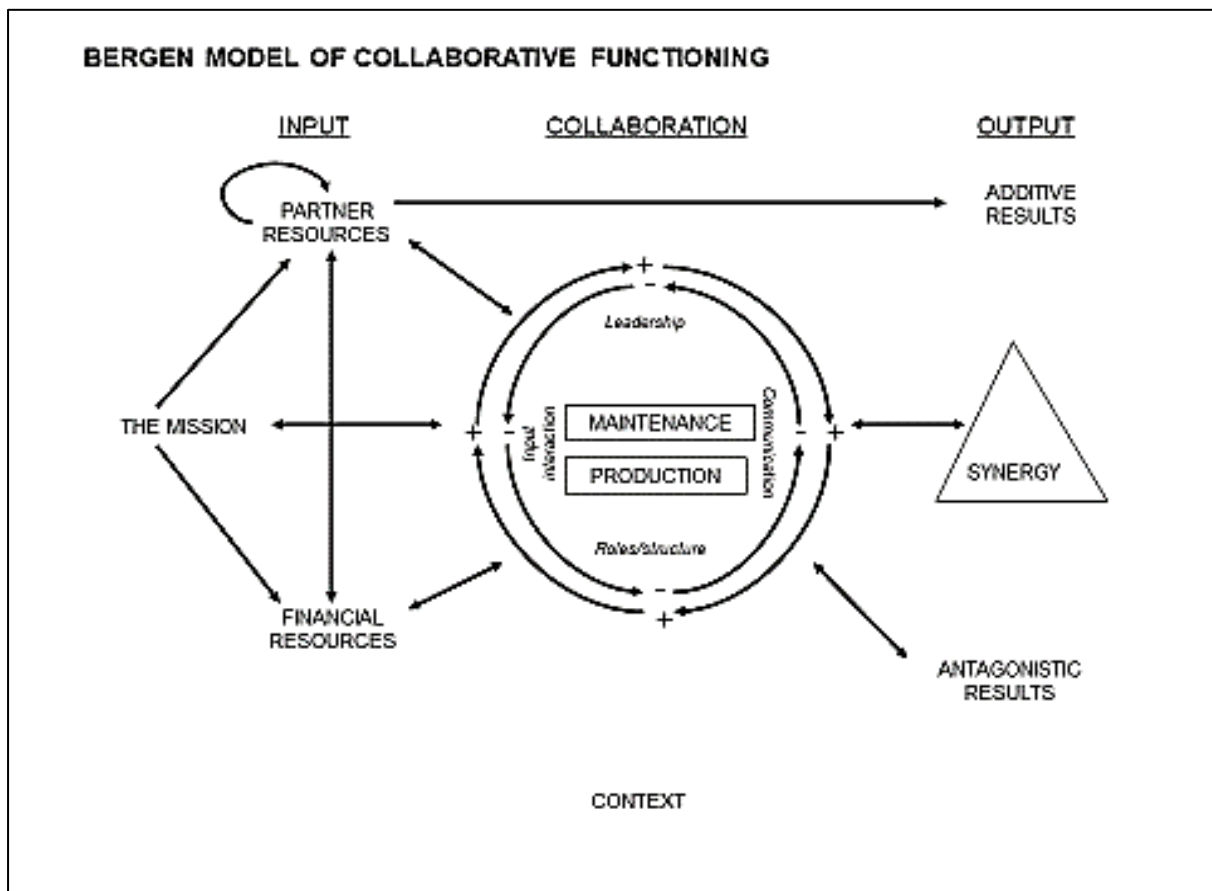


Figure 2. 1 Bergen Model of Collaborative Functioning (Corbin et al., 2013)

Antagony is not the mere failure to produce synergy, it is the wasting of partner and financial resources to the extent that more is consumed in the process of collaborating than is produced, it subtracts from the partnerships. Arrows depict antagony feeding back into the collaborative context and to the inputs indicating the negative impact antagony can have on functioning and resource acquisition (Corbin and Mittelmark, 2008; Corbin et al., 2013; Katsi et al., 2016).

The BMCF has previously been used as an analytical frame to examine case studies of several collaborative working arrangements: in Tanzania to assess an HIV/AIDS organisation's history of North-South partnership (Corbin et al., 2013), in Kenya in the implementation of the Community-based Health Management Information Strategy project (Kamau, 2010). In Botswana, the model was used to explore achievements and challenges of the partnership on a safe circumcision program establishing how the mission and functioning of the partnership contributed to the actual outcome (Katsi et al., 2016). In these studies, learning about both synergy and antagonism created an opportunity for partners to reflect on what went wrong and what could have been done differently.

The BMCF was used in the study to explore the experiences of health research stakeholders with international health research collaborations in Zambia. In particular, the study focused on contribution to the collaboration (input), how contributions interact to maintain activities of the collaboration (throughput) and the outcome of the collaboration (output). The study explored some of the elements at each stage of the partnership i.e. input, throughput and output that interact with each to create synergy and/or antagonism for partners. The model provided the basis for framing the research objective and questions as well as the interview guide. By implication, the data was analysed deductively (based on the main categories of the model) while at the same time inductively deriving themes from the data.

Summary

This chapter has discussed the views of other researchers on international health research collaborations. The chapter has revealed concerns regarding power relations in international health research. Concerns such as power dynamics and delegation of roles and responsibilities have been discussed. The chapter further highlights partnerships processes and procedures that lead to successes and challenges in partnerships. One-way accountability specifically resonates as a hindrance to successful partnerships where Northerner partners require Southerner partners to report how finances are spent. Inequality and political interest in health research have also been a point of discussion looking at fairness and equality and the existence of a culture of aid and colonialism. It is pointed out that neo-colonial dynamics within North-South research partnerships minimise Southern partners' engagement. Involvement of local researcher with regard to agenda and priority setting has also been discussed and lack of capacity building in partnerships.

CHAPTER 3: METHODOLOGY

This chapter presents the research methodology adopted in the study. It constitutes the study design, study population, study sample, sampling techniques, data collection method, and analysis procedures.

3.1 Study Design

Given the dynamism of partnerships and the study's objective to explore experiences of health research stakeholders, a qualitative study design was used to achieve a broad and diverse understanding of such an inquiry which was mainly explorative in nature. According to Thorne (2008 p.38), qualitative research seeks to generate empirical knowledge about human phenomenon for which depth and contextual understanding would be useful, and for which measurement is inappropriate. It was assumed that collaborative functioning is constructed by those experiencing it and hence it was important to uncover diverse opinions, perspectives, and experiences from those directly involved with international health research collaborations in Zambia.

Through exploration of the real-life issues concerning the concept of collaboration, it was feasible to suggest that gaining a phenomenological understanding of collaboration from the perspectives of the participants was significant. Thus a phenomenology approach was used, which entailed the use of face-to-face interviews with participants involved in the process, describing the meaning for several individuals of their lived experiences of the concept or phenomenon (Creswell, 2014).

3.2. Study Site

The research study was conducted in Lusaka district. Lusaka district was purposively selected because it is the centre of major health research activities in the country; it is also the location of the largest University in the country (University of Zambia) and the largest teaching hospital (University Teaching Hospital) both of which are actively involved in health research collaborations with different partners from the North. In addition, the Ministry of Health and regulators of health research in the country are based in Lusaka. The District's position meant that leading offices for major partners, researchers, and stakeholders needed for the study were found here.

3.3 Study Population

The study population consisted of health research stakeholders from various collaborations implementing health research activities related to HIV/AIDS, neglected tropical diseases, hepatitis, reproductive and sexual health, HIV prevention and maternal health. Participants included principal investigators, project coordinators/managers, laboratory managers, clinical researchers, academic researchers and regulators from the ministry of health and the ethics committee.

3.4 Sampling Procedures

A purposive sampling strategy was employed in the study, which involved selecting participants based on their expertise. Cresswell (2014), maintains that purposive sampling is used when the researcher selects individuals or a site because they can purposefully inform an understanding of the research problem or central phenomenon of the research study. Using purposive sampling for this study enabled the researcher to select health research stakeholders who played a significant role in at least one or several large international health research collaborations involving partners in both high and low-income countries. In doing so, the participants were able to inform the study on the experiences of stakeholders with international health research collaborations.

Sampling was initiated using the Zambia Forum for Health Research (ZAMFOHR) online database and recommendations from University of Zambia School of Public Health of researchers, institutions, projects/collaborations, years of research, topic, discipline (s) and career stage.

3.5 Sample size

The study consisted of 20 health research stakeholders selected from the study site according to four major categories of informants; researchers in academic institutions, researchers from large non-governmental organisations, researchers from health facilities and health research regulators. There were (4) academic researchers, (4) project managers/coordinators, (4) clinical researchers, (3) principal investigators, (3) laboratory manager, (1) ethics committee member and (1) member from the National Health Research Authority. Participants were also at different career stages with two researchers having been involved in health research for only three years and 18 of the researchers having been involved in health research for more than 10 years.

Inclusion Criteria

The primary inclusion criterion was health researchers involved in or recently involved in health research involving Zambia and a Northern country/institution for not less than one year. The lead investigator sought to recruit a balance of senior (more experienced) and junior (less experienced) respondents. Participants were selected based on their characteristics, in line with Given's (2008), definition of purposive sampling; and to obtain information and insights from those especially knowledgeable about or experienced (Cresswell, 2014). A knowledgeable participant was defined as one who interacts with Northern partners and was familiar with the work of the collaboration as well as its leadership, administration, resource allocation, decision-making processes, and the successes and challenges faced.

Exclusion criteria

Researchers were excluded if they had been living in a Northern country but working in health research collaboration in Zambia. Researchers were also excluded if the research studies they had been involved in had been completed more than 10 years prior to the commencement of data collection.

3.6 Data collection tools

The researcher used both primary and secondary data for the study. Primary data was obtained through in-depth interviews while secondary data collection was obtained through published and unpublished sources.

3.6.1 Primary Data Collection

Primary data collection was employed over a period of 4 months using in-depth interviews. Interviews allowed for greater scope of asking questions and use of probing questions in order to get clarifications on ambiguous questions or for seeking more elaborations of incomplete answers (Neuman, 2006). The interviews covered a range of subjects, steered by a topic guide developed using the Bergen Model of Collaborative Functioning which has been employed in similar studies (Kamau, 2010; Corbin et al., 2013; Katisi, 2016). However, the guide was not strictly followed as some questions emerged during the interview. Questions included: personal research career and experience of the collaboration, the mission of the collaboration, leadership of the collaboration, partner's resource contribution; partner's roles,

views about the challenges and successes in the collaborations and factors of particular importance in collaborations between Southern and Northern partners.

3.6.2 Secondary Data

The study looked at what has been written on the experiences of health research stakeholders with international health research collaborations. Such data were obtained from reliable internet sources and through document reviews, research protocols, organisation websites, and other relevant published sources which included; journals, reports, books, research guidelines etc.

3.7 Data management and storage

All interviews were audio recorded with the permission of the participants. Recording interviews ensured an intense and accurate analysis of information gathered. All identifiers were removed from the interview transcripts prior to analysis. Participants were each assigned a unique study ID number that was used to capture data. Transcripts and audio recordings was kept in an encrypted computer with a password known only to the study investigator.

3.8 Data Analysis

The interviews were 30 to 90 minutes long. Analysis was conducted simultaneously with data collection, with an initial analysis of early interviews informing the themes explored in those that followed. The analysis process began with transcribing of the audio recordings and reading through the transcript against each recording multiple times in order to capture the context and meaning. Verified transcripts were then imported into Nvivo 12 data management software for data management.

Thematic analysis approach was used, which is a method for identifying, analysing and reporting patterns within data. This minimally organises and describes a dataset in detail and goes further to interpret various aspects of the research topic (Braun, 2006). This was done through six phases; familiarisation with data, generating initial codes, searching for themes among codes, reviewing themes, defining and naming themes, and finally producing the final report.

Data was familiarised by multiple readings of the transcribed interviews while paying attention to patterns and occurrence. At this point, the researcher focused on data that addressed the research question. This marked the coding process. Generation of initial codes

was done by documented information on health research collaborations including factors that support and hinder their success. This involved listing the items from the data set that had reoccurring patterns. Meaningful parts of data related to the research question were organised and examined. The lists of themes were combined with the coded data with proposed themes. Some themes emerged from the data in cases where the following issues occurred; repeated ideas, indigenous terms, metaphors, analogies as well as similarities of the participants' linguistic expression. The global and organising themes were guided by the model and sub-themes generated from the data. The researcher wrote the whole analysis to identify the story of each theme and its significance.

Finally, the revealed final themes and the report was written according to the sub-themes that made meaningful contributions to answering research objectives. The researcher presented the dialogue connection with each sub-theme in support of increasing consistency of the results. The following organising themes were presented; the mission of the collaboration, financial resources, partner resources, partner roles and responsibilities, communication, input interaction, leadership, synergistic outcomes, and antagonistic outcomes.

Data validity and reliability

Validity was attained by sharing the transcripts and audio recordings with the two supervisors and a third independent reviewer for verification. The reviews were useful for counter checking mistakes, interpretation of transcripts and alignment of the codes. According to Maltered (2001), multiple researcher reviews are useful in the validation of results.

In terms of reliability, the study ensured that it measured what it set out to measure through triangulation. Even though only in-depth interviews were conducted with stakeholders, the study also used document reviews to support findings and published articles from online sources. Guba, (1981) argues that collecting data from a variety of perspectives, using a variety of methods and drawing upon a variety of sources enables an inquirer's predictions to be tested.

Credibility of data collectors

In terms of data collection and credibility of researchers, the lead researcher conducted all in-depth interviews; the supervisors were also present and gave technical support during the data collection process in the field; all of whom have vast experience locally and internationally carrying out qualitative research. In addition, the lead researcher holds a bachelor degree in

development studies and has been involved in several research studies focusing on public health. The lead researcher's experience made it easy to build rapport and trust with research participants and hence positively facilitating the data collection process.

3.9 Ethical Considerations

The study involved experiences of health researchers collaborating with Northern partners. Because funding for health research depends on external funders, this made the topic under study very sensitive.

3.9.1 Approval

The needs of the participants were the priority of this study. In order to ensure the safety and rights of the participants, approval, and clearance was sought from the University of Zambia Biomedical Ethics Committee (**REF. No 051-06-17**) and the National Health Research Authority (NHRA) in Zambia (**MH/101/23/1**). Signed informed consent was obtained from individual participants after explaining the purpose, benefits and risks and how the information would be used and assuring them that the information would be held in confidence.

3.9.2 Respect for Participants and confidentiality

Anonymity was assured since the participants' names were not to be written or mentioned in the study. The participants had privacy during the interviews. Data was not availed to any unauthorized person. All data collection tools used to gather information will be destroyed after the publication of the results. No name was used and the participants were assured that information would be used only for the improvement of health research collaborations. The benefits and likely risks were communicated being that the research findings though may not benefit the participants immediately but was to be used to inform policymakers in order to improve health research in Zambia.

3.9.3 Autonomy

Due to the sensitive nature of the topic, all organisation/institutional names and individual participants have been anonymised. The study used abbreviations to refer participants to protect the participants and maintain confidentiality.

3.10 Limitation of the study

1. Firstly, generalizability of study findings is a limitation in most qualitative research, which is not an exception in this study. The study was conducted in Zambia with a small sample of respondents. The findings may only be relevant to this study setting; future research may need to be conducted in other Southern contexts.
2. Another limitation was using an interview as a qualitative method of gathering information, some respondents may not have been free to openly discuss power relations in partnerships arrangements because the topic is sensitive as speaking against Northern partners would jeopardise their working relations with Northern partners.
3. The study's other limitation is that it focused on the experiences of Southern partners only. The inclusion of Northern partner's experiences would have enabled the study to make a comparison of Northern partners thought about collaborations. However, a lot of literature has included Northerners' perspective.
4. Further, there are few perspectives from the community, who are the ultimate beneficiaries of health research. Research is therefore needed to include the perspectives of people or communities whom collaborative health research partnerships serve and how they are involved in the research process and find out if collaborations have any meaningful impact upon the people or communities they serve.
5. Lastly, using the BMCF as a theoretical framework meant that some things outside the framework's global themes could not be fully discussed. This limitation highlights the need for further extending the model to include other aspects such as trust and ownership to better explain the power imbalances between southern and northern partners. This could be achieved through further research on partnership functioning.

CHAPTER 4: RESEARCH FINDINGS

This chapter presents the findings of the study to explore the experiences of health research stakeholders with international health research collaborations. It starts by presenting an overview of the results. A brief description of the participants is shown below and is followed by the presentation of findings on partnership functioning in relation to the Bergen Model of Collaborative Functioning.

4.1 Participants Characteristics

The details below are the descriptions of health research stakeholders who were interviewed. Stakeholders were compared in terms of career stage, institutional affiliation and number of years in research. Participants were at different career stages, with two researchers having been involved in health research for three years and 18 of the researchers having been involved in health research for more than 10 years (see table 1). Participants from academia and health institutions had multiple roles such that, in addition to being part of health research partnerships, some were responsible for teaching, clinical work, and management roles, while those from non-governmental organisations held specific roles such as project managers, laboratory managers, and study principle investigators. Despite the participants being located in the capital Lusaka, research activities were conducted in different parts of the country with different institutions.

Table 4. 1 Participant Characteristics

Sex		Number of respondents
	Male	12
	Female	8
Category		
	Academic Researcher	4
	Clinical Researcher	3
	Laboratory manager	3
	Principal investigator	4
	Research Regulator	2
	Project Manager /coordinator	4
Institutional affiliation		
	Research Institution	5
	University	8
	Health Institution	5
	Regulators of Research	2
Career level		
	Junior level	2
	Senior level	18
Total		20

Source: Fieldwork (2017/2018)

Table 2 below shows the Organising and Global themes according to the three parts of the BMFC model: Input, Throughput and Output and the sub-themes that emerged from the data. These themes are the basis for the presentation of the data.

Table 4. 2 Global themes of the BMFC model: Input, Throughput, and Output

<i>Global Themes</i>	<i>Organising themes</i>	<i>Sub-Themes</i>
<i>Input</i>	Mission	Desire to contribute to mission
	Partner resources	Southern partner capacity to contribution
	Financial resources	Ninety percent funding from Northern partners
<i>Throughput</i>	Input interaction: Power	Power to delegate tasks Power to dictate the expenditures
	Leadership	Leadership and trust Leadership and funding
	Structures and Procedure	Partner roles and responsibilities
	Communication	Negotiating Skills
	Maintenance and Production	Accountability
	Tasks	Capacity building
	<i>Output</i>	Synergy
Antagony		Unequal distribution of research rewards Ownership Unrealistic expectations of partners

4.2 Inputs

According to the BMCF, the inputs to a partnership are its mission, partner resources, and financial resources as discussed below.

4.2.1 Mission

The mission is the purpose or aim of the partnership, why individuals and organisations have agreed to form a collaborative arrangement. Having this purpose motivates both individuals and organisations to enter into partnerships.

The drive of health research is to improve the quality of healthcare for populations most disadvantaged through the generation of evidence to influence policy, designing and implementing interventions. This is linked to the mission of the partnership. Some missions of partnerships mentioned by interviewees include reducing early marriage, early pregnancy, and school dropouts, providing answers to local problems such as postpartum haemorrhage

and the 90-90-90 target in the fight against HIV/AIDS. The 90-90-90 target, for example, aims to have 90% of people who are HIV infected diagnosed, 90% of people who are diagnosed to be on antiretroviral treatment and 90% of those who receive antiretroviral to be virally suppressed by the year 2020:

“We have the 90-90-90 target. So it’s a day-to-day thing of trying to come up with new ideas on how we are going to scale up on the viral loads.” (IDI 07 Laboratory Manager)

This mission must be clearly understood by both partners right from the beginning as this informant explains:

“When you are doing these partnerships, you have to agree that you want to partner on. When you agree then there should be a memorandum of understanding, which prescribes how Zambia will behave and how the other partner will behave.” (IDI 12 Research Regulator/Researcher)

Establishing of the mission is important for the partnership because it enables designing of interventions using funds from Northern partners, generating evidence to influence successful policy development and improving service delivery. This is achieved through the supply of ideas from multiple partners with different experiences:

“If we want to improve maybe the use of HIV drug resistance information, we need both partners because we are the ones experiencing those drug resistance, we understand our local systems better, but we also have partners who have worked in other countries that have implemented such systems and have more experience setting these systems in place.” (IDI 14 Project Manager/ Coordinator)

While health research partnerships are formed to improve health outcomes and well-being of the general community, most interviewees emphasised the role of local inputs to ensure that the research is relevant for communities that they targeted:

“It’s key to have strong local input because at the end of the day I think that usually, all parties want to improve local health and well-being but sometimes the external party may not know how to do this and might be a bit off in the approach or they might think that something is more priority than it is.” (IDI 09 Principle Investigator)

4.2.1.1 Desire to contribute to the Mission

Because of the many benefits of doing health research, interviewees indicated that they desired to participate in partnerships to contribute to scientific knowledge generation and improve their practice:

“My motivation first started with my opportunity to do research courses such as epidemiology, which sort of opened up my mind that as a practicing doctor I may not be enough. I need to find answers, especially for common problems. So I found that collaboration with my colleagues from the North was helping me meet my goals. So it has amplified my interests in research.” (IDI 10 Clinical Researcher)

4.2.2 Partner resources

In addition to the mission, partner resources such as skills in data collection, time and partner values are vital prerequisite for productive partnership functioning.

4.2.2.1 Southern partner’s capacity to contribution

For collaborations to succeed Northern, partners are often dependent on Southern partner's local skills and the context in which the research takes places. Interviewees indicated that Southern partner's contribution to partnerships includes; knowledge of local communities, network building, and local expertise. Explains this informant:

“Money can be there but if the local expertise that are going to implement it are not there, that means that money will not yield any results.... One brings the resources in terms of financial resources; we have the local resources to implement the activities as well as the skill.” (IDI 15 Clinical Researcher)

Another informant agrees with this informant:

“I think for us, we may not provide the funds in terms of hard currency but we do contribute through works and human resource hours, workstations and facilities in which the research is conducted. In addition, help in reducing the period that the project would take if the Northern partner had to come and implement all these things. Therefore, we shorten that time span and provide the local intelligence to do that.” (IDI 14 Project Manager/ Coordinator)

4.2.3 Financial resources

According to the BMCF, one of the key ingredients to a partnership is a broad range of participation from diverse partners and a balance of human and financial resources. Financial resources are the most important factor respondents mentioned as being important for the success of any partnership. Northern partners provide financial support, while Southern partners implement the research:

“We cannot run away from the fact that we need funds. For example, the reagents we use in the lab, we need to procure those things, you need to keep your staff going, they need to survive, infrastructure, all these things. You need power to be running, you need consumables as well, to keep going, all those come with a cost. (Northern partner) has been very good to look at that and ensure that everything is running.”
(IDI 07 Laboratory manager)

4.2.3.1 Ninety percent funding from Northern partners

Despite the availability of financial resources from Northerner partners, interviewees pointed out that, funding mechanism where 90% of the funding was from the Northern partner was problematic in the partnerships because it often leads to power imbalances. One informant explains:

“We do not fund research in this country; research is not a very big priority to our country. So most of the money that comes in is from our partners in the North. In addition, our partners sometimes they will say we have money and this money must be used on this and this kind of research. So that the local researchers have to adapt to (laugh) to what the demands of the funders are.” (IDI 05 Ethics Review Committee Member)

This interviewee expressed frustration with the lack of government commitment to funding research and suggested one way to improve power relations:

“Gosh, I would love it if the ministry of health started a funding institution. I see so many GX, SUVs running around so we know there is money.... Maybe here is another idea, maybe there should be co-funding with local agencies. Maybe we should be required to have maybe 20% of the funding from the Zambian government and that way it's clearly stated that there is some kind of balance. There is some kind of collaboration between donor and recipient.” (IDI 09 Principle Investigator)

Most interviewees reported that there was a lack of power balance between partners because Southern partners did not make any financial contributions to the partnerships. This means that even though it might be a 50/50 collaborative arrangement, the one giving the financial resources often dictates the research agenda:

“There is partnership but everywhere partnership per say is not 50/50. Even when you are married, one will take a bit of an upper hand than the other. In this case, since they give the resources at times it is easy for them to tell you what they want. You might have a problem and then they will just tell you ‘we are fine with this problem but we are interested in this’. You might even have bigger problems but they will also go into the area that is of interest to them”. (IDI 06 Laboratory Manager)

4.3 Throughputs

As the inputs interact during production and maintenance activities through time and roles, power struggles are also manifested. This is shaped by the interaction of roles, leadership, and communication. There can be both positive and negative experiences as partners interact to work together.

4.3.1 Input interaction: Power

Input interaction refers to the links and influence of the mission, partner resources, history of researchers, cultural context and financial resources upon one another in the context of collaborative functioning.

4.3.1.1 Power to delegate tasks

Every type of partnership arrangement has particular structures and separation of roles and responsibilities between partners. These partner roles and responsibilities in some partnerships may sometimes cause power imbalances where the Southern partners in most partnerships remain relegated to the role of the data collector and required to send that collected data to Northern partners for further analysis.

“I remember one of the conferences we went to outside Zambia. We had been there for 5 days, at the end of the day we were allocating duties, who does what. We were almost done then this professor from one African country just stood up and said, ‘Have you realized that all the donkey work has gone to Africa?’ (IDI 03 Academic Researcher)

Majority of interviewees explained that the Southern partner in most partnerships still remain as a data collector and sends collected data to Northern partners for further analysis. This informant further explained this:

“You are more like a data collector. You are just facilitating the data collection after the data is collected it is gone and they do the analysis. I might participate in a few things but really, it is their research project, you are just being used as a data collector. Therefore, it is a challenge and of course, the problem that is there is because we do not have our own funding.” (IDI 02 Principle Investigator)

4.3.1.2 Power to dictate expenditures

This lack of funding from Southern partners often leads to Northern partners dictating how money meant for research should be spent and on what. This is done without the explicit involvement of the Southern partner:

“The principal investigator will be a Northern partner and us as Zambians we are just co-investigators. That in itself sometimes has its limitations in the sense that whereas we could be involved in the initial budgeting process you may find that we have no control over the budget per say and in some cases, you find that the money comes from the (named Northern partner). So, our colleagues tend to have an upper hand.” (IDI 10 Clinical Researcher)

4.3.2 Structures and Procedures

Usually, every organisation has particular structures and separation of the roles between partners, because it helps to organise and manage work. Interviewees indicated that organisations divided roles and established rules from the beginning. This is a basic prerequisite for collaborative functioning.

4.3.2.1 Partner roles and responsibilities

Northern partners often come to do research in new environments where they need Southern partners to link them to communities and act as gatekeepers. Most interviewees acknowledged that despite being unable to contribute financial resources, they were able to link Northern partners to stakeholders such as the ministry, which makes the process of seeking approval easier and faster:

“We link them to the ministry; we link them to different stakeholders. So that becomes one of the major benefits that we are have been able to provide. But also, we are also experienced in data collection itself. There might be diversity in terms of the level of skills but we are experienced in collecting data in the communities where we work in and that is something that they benefit from us.” (IDI 03 Academic Researcher)

4.3.3 Communication

Effective and regular communication is one of the key pillars that hold a partnership together. Without it, it is almost impossible to maintain effective functioning in a partnership. Communication within the different partnerships was of various types such as Skype calls, phone calls, and face-to-face meetings. However, most respondents preferred face-to-face communication to avoid tension in the partnership and talk about challenges; this informant explains:

“I try to be honest with the partners. So if things are not working right we discuss. We talk about authorship. We talk about responsibilities. We talk about duties..... People who do not communicate always go different paths. We communicate every day.... if there is enough communication in terms of what is going on in the partnership, which can really help these partnerships be favourable.” (IDI 03 Academic Researcher)

Another informant also expressed this as follows:

“You see them, you talk to them as we are talking right now and we are agreeing on things. So if you have that level of interaction, chances of not agreeing on several things are much less, because when you are disagreeing each one is putting up their point and you all come to a common consensus.” (IDI 01Project Manager/Coordinator)

4.3.3.1 Negotiating Skills

Tied to communication is the ability of Southern partners to communicate challenges that they may face in health research collaborations and negotiate with their partners for involvement in the collaboration at different levels. One interviewee put it this way:

“I think that for me, partners in the South need to learn negotiations skills. They need to learn how to negotiate for involvement in all phases of the partnership including data collection.” (IDI 03 Academic Researcher)

4.3.4. Leadership

Leadership is a moving force in any collaboration and is responsible for successful collaboration. Leadership was mentioned by all interviewees as being key for partnership functioning. Leaders of partnerships need certain attributes to provide good leadership. Major attributes mentioned by interviewees included inspiring leaders, hardworking leaders, good communicators, leaders who value the local team, transparent and trusting leaders and leaders who are able to motivate others. One informant said:

“I can specifically talk about the PI from the other side (Northern country), you have to commend her, she is extremely hard working. Very thorough and very very motivating.” (IDI 01 Project Manager/Coordinator)

It was clear that in addition to having these attributes the leader had to be someone who appreciates the contributions of the team implementing the activities:

“I have a very great collaborator in (Northern country) who is very interested in the area that we are doing research and I think he highly values the local team here that is doing the research.” (IDI 09 Clinical researcher)

4.3.4.1 Leadership and Trust

However, because of the resources coming from Northern partners, leadership is mostly from Northern countries. This leadership style was a concern to some interviewees and raised questions of trust in partnership functioning. The following quotes demonstrate this:

“In terms of hindrance, I think it is just the opposite of what I said which is an unwillingness to allow leadership from both sides.” (IDI 14 Project manager/Coordinator)

“Also sometimes, you should consider theft of something; people are coming with theft of something under their head because if they do not put you as a PI in that subject matter, they can pick anything, which they find. But we should also as Zambians also guard against that.” (IDI 12 Research Regulator/Researcher)

4.3.4.2 Leadership and funding

Transparency is linked to leadership styles where more power is given to the Northern partner who makes the major decisions for both partners even though both partners maybe equal applicants of the research grant.

“Leadership mostly comes where the money comes from. That is why they say ‘he pays the piper decides the tune’. They normally bring the money and they are most often the leaders.” (IDI 08 Academic Researcher)

Some interviewees complained of leaders who often were not transparent in the partnerships and made major partnership decisions often demotivated Southern partners:

“In a way, these issues rotate around funding and leadership as well because definitely whoever funds calls the shots.... leadership because when you have all those financing issues, there are also leadership issues because if there is strong and good leadership you shouldn't have financial problems. When there is strong and good leadership those issues should not come up.” (IDI 18 Junior academic researcher)

What the quotes above illustrate is the current challenge with Northern leadership styles where some leaders lack trust and transparency. The active involvement of local leadership is something worth pointing out. Local researchers need to take up leadership roles as this respondent explains:

“When we started, the people who were leading were Northerners but right now, the coordinators and so on are local Zambians who are leading. Occasionally, the Northern partner will only come to maybe do the checks and provide certain other skills that a Zambian may not have. I think I have seen in my short life how progressive leadership is being transferred locally. I mean there is still room to do more.” (IDI 15 Clinical Researcher)

4.3.5 Maintenance tasks

Maintenance refers to the activities that keep the partnership itself running. According to the BMCF, these activities do not intend to affect the Mission, they serve the purpose of supporting the work by doing things such as seeking more funding, reporting on finances, supporting partners through capacity-building and maintaining communication structures, roles and procedures through future planning and day-to-day management.

4.3.5.1 Accountability

Activities to keep partnerships functioning include reporting systems. These reporting systems enable Southern partners to report progress of the research to Northern partners:

“We write semi-annual reports and annual reports and those guide our funders to see how we are we are performing.” (IDI 07 Laboratory Manager)

Interviewees, however, pointed out that there was one-way accountability with Southern partners having to report how they were spending financial resources. If there were any mismanagement of funds by the Southern partner, the partnership would often end:

“If at all, they [Northern partners] sense anything to say that the people we are going to be dealing with may not be handling the monies properly. They may not have the time to invest in the research. They very easily pull out.” (IDI 19 Clinical Researcher)

Another respondent put it this way:

“Because it is their money, they will follow you up. They want to have milestones, guidelines, indicators and when you will finish your research and what they want at the end.” (IDI 20 Laboratory Manager)

4.3.5.2 Capacity Building

It is often been emphasized that partnerships need to build capacity for Southern researchers; this emphasis is based on the assumption that there is a lack of skills such as data analysis among Southern scientists. Some interviewees who placed importance on capacity building in North-South health research partnerships revealed this.

“Because this research is being done in Zambia when they are coming, we expect them also not only to get just data from this country but also they must build capacity as well among the locals. So really to me when research is coming to the county in most cases we would want to see that there is a component of capacity building, and one of them is through the involvement of local researchers.” (IDI 05 Ethics Review Committee Member)

In turn, local researchers share experience and knowledge gained from Northern partners with other less experienced young researchers. By working together with more experienced

researchers, there is mentorship for young scientists through the transfer of health research skills.

“The other thing that they encouraged was training and mentorship of young scientists in the research.... That is the other advantage; they wanted not only to build the capacity of the researchers but also the next generation.” (IDI 02 Principle Investigator)

However, in most partnerships Southern partner's capacity is underutilised due to the lack of recognition of their skills to contribute towards the partnership. Thus, capacity is often built on the assumption that Southern partners do not know and Northern partners know it all.

“But there is also the aspect of people from the North also having that kind of superiority complex, they kind of feel they know it all.” (IDI 04 Academic Researcher/Scientific officer).

4.4 Outputs

Outputs of a partnership are the rewards that come with working together. The BMCF shows the two kinds of outputs in a partnership i.e. synergy and antagonism. Synergy is often used to describe the multiplicative interaction of people and resources to solve problems that cannot be tackled by any of the partners working alone, which adds to the partnership. Antagonism, on the other hand, is the wasting of partner and financial resources to the extent that more is consumed in the process of collaborating than is produced, it subtracts from the partnerships.

4.4.1 Synergy

Synergy is the most desired outcome for collaboration. Partners can get much more than if they would achieve alone and even the sum of their results. Synergistic outcome is an outcome that is valuable not only for partners but for all.

4.4.1.1 Infrastructure development

By working together partners have been able to build new structures such as laboratories, which were never there before. These laboratory facilities have enabled tests to be performed in the area of HIV/AIDS and thus improve service delivery to the community.

“They have been able to build a scientific lab which is still currently standing at the moment and this is a lab where you can do very high tech tests.” (IDI 19 Clinical researcher)

4.4.1.2 Professional advancement

Partnerships help Southern health researchers to advance their careers thereby creating synergies. For example, through collaborating with the Northern researchers, Southern health researchers are able to publish in international journals, which leads to career advancements:

“A number of people were able to have their PhDs from different countries. They were sponsored as part of that collaboration. Then I can talk about myself. It was because of that collaboration that I was able to get the Ph.D. scholarship.” (IDI 03 Academic Researcher)

Another respondent agrees with this:

“We send people for training. So like I'd say we just sent our lab team to learn about running diagnosis and performing genotyping which is very good because when they came back, they will be providing a quality service.” (IDI 07 Laboratory manager)

4.4.2 Antagony

Antagonistic outcomes are the most undesired outcomes. It is when partners got results even worse than additive. Here the study describes factors that affect the output of the partnership negatively and creates antagony resulting from unequal distribution of research rewards.

4.4.2.1 Unequal Distribution of rewards

Research rewards are the outputs in the partnerships, which benefit the entire community. At a personal level, these research rewards include publications in international journals. However, fair distribution of authorship when it comes to publication has been a concern. Several informants explained this.

“You find everywhere fighting for authorship, who should be the first author that is a big problem for all international collaborations almost everywhere. So even, where we go to conferences people talk about experiences even in the USA, in Europe, Asia, and Africa that is a major problem. So it is not really in terms of who has put in the most contribution, sometimes it's who has the most power.” (IDI 03 Academic Researcher)

Authorship practices in of international health research can be even more challenging given the variety of roles and responsibilities of researchers from LMICs and HICs. The same informant further explained:

“The worst-case scenario its where some people write nothing completely, write nothing completely but they are part of the publication because they are part of the partnership. So usually young researchers like yourself you are told by the senior research people to say do the work after you have done the work you need to include everyone. It is more of like a political decision based on consortium or partnership arrangements. So that is very problematic and it's against the regulations of authorship, it's against ethics, research publication ethics and academic ethics.” (IDI 03 Academic Researcher)

4.4.2.2 Ownership

Another factor that hinders successful health research partnership is ownership of research materials. Some respondents complained that they often did not have access to health research data once sent to partners for further analysis, as illustrated by the quotes below.

“So like for the recording themselves, the team has [control] because they are the ones who collect those recordings from the facilities, I also have access to those recordings. But once I get to do the quality control I send that report to (name university from the north) and then there are certain interviews that are done electronically by the team here, once those recordings of those interviews go, we do not have access to them in terms of the analysing part. So the one who gets to decide what happens to the data after analysis is the (named Northern partner) based PI. Although it will be done in collaboration with the local PI but the main manager of that and control is done by the (named Northern partner).” (IDI 11 Project Manager/Coordinator)

“Generally speaking. We do not have a lot of ownership of our data.” (IDI 13 Principle investigator)

Respondents further highlighted the challenge in accessing data produced from the collaborative partnership and echoed the need for data-sharing policies and processes that would permit people to access it. This informant explains:

“We have had huge challenges in Zambia with data access. Many projects have collected data on maternal and child health, data on HIV health, adolescent health but that data is not openly available because we do not have a data protocol. Am aware that the ministry of health and ZICTA are currently trying to come up with that, but until that is done I think the ideal is that the data should belong to the ministry of health or the central statistics office and then through that people should be able to access this data.” (IDI 14 Project Manager/Coordinator)

4.4.2.3 Unrealistic Expectation of partners

Southern partners are responsible for putting in place structures for the research to take place such as ethical clearance from review boards within the country. However, the pressure to meet the expectation of Northern partners often caused tension in partnerships. This results from a lack of considerations of the bureaucracies involved in doing health research:

“I think some of the major disappointments have been unrealistic expectations by [from] the Northern partners sometimes. I think they have to understand the environment in which we are working in. Sometimes it may not be the fault of the implementation group but just the bureaucracies around achieving what the research is meant to do and sometimes that can derail the implementation of the project.” (IDI 14 Project Manager/Coordinator)

Some interviewees indicated that one solution to reduce the tension in partnerships was for Southern partners to begin to take interest in health research and adhere to professionalism when conducting research with Northern partners:

“I know there are bad collaborators, there are good collaborators. The main thing I would say is that as researchers in the Southern part, can we educate ourselves on research so that we know what to do. Can we begin to show the interest to be the ones pushing the research agenda then we will not have research being pushed on us.” (IDI 19 clinical researcher)

Summary

This chapter has presented the findings on experiences of health research stakeholders with international health research collaborations in Zambia. The findings have been presented according to the Bergen Model of Collaborative Functioning. Findings show that there are many benefits of collaborating with researchers from Northern countries because of the availability of funds to do research. Through health research collaborations, evidence is

generated to improve policy and interventions are developed to improve the wellbeing of the community. In addition, research advances the professional careers of researchers in developing countries as their capacities are built and are exposed to sources of funding. However, there are challenges experienced when working with Northern collaborators particularly power imbalances. Southern partners in most research collaborations have little power to decide how funds are spent, do less rewarding tasks such as data collection and are expected to be accountable to their Northern partners. Further, issues of lack of access to health research data, authorships challenges and unrealistic expectations from Northern partners cause antagonist relationship between partners.

CHAPTER 5: DISCUSSION OF FINDINGS

This chapter focuses on an overall synthesis of findings using the Bergen Model of Collaborative Functioning. The chapter is organised according to the global themes of the BMCF and integrates results of the present study with the literature on partnership functioning. Published literature on collaborations does not provide detailed insight into the inner workings of international health research collaborations and about the processes that improve or hinder joint working. There are many factors that lead to successful health research partnerships; however, there are also factors, which prevent partnerships from achieving their goals. These are largely due to funding mechanisms, which cause power imbalances leading to publication challenges, dictation of the research agenda and ownership of samples and data leading to misunderstandings between partners and a general lack of motivation to collaborate.

5.1 Inputs

The mission is the term used by the BMCF to describe the problem or primary goal the partnership has chosen for their work (Corbin et al., 2013). Findings from the present study show that one of the most important factors in collaboration is the mission or the purpose that brings individuals and organisations together through a strong commitment to their work. The study further demonstrates how agreeing on the mission can be a motivating factor for both partners. This mission should be clear right from the beginning and be relevant to the communities that they serve. Findings on the importance of the mission are comparable to those of Weiss et al., 2002; Dosbayeva, 2010; Corbin et al., 2013 and Katisi et al., 2016, who conclude that the more ambitious the mission, the more important it is for all parties involved to achieve positive results from their work. In the case of the 90–90–90 target in the fight against HIV/AIDS, this study's findings suggest that having a clear goal at the beginning of the partnerships helps partners commit to working together. This also serves as a motivating factor and a reason to continue partnering.

The study shows that when the mission has been established, there is evidence generation to influence policy, designing and implementing of health interventions using funds and experience from Northern partners to address seemingly insolvable challenges facing the world today. John et al (2016), reveal that having clear expectations at the start of collaboration and planning early is key to achieving success in health research partnerships. In addition to the mission is the need to have local inputs to ensure that the research is

relevant to the community. Findings from this study reveal that there is less local input when partnerships are formed as Northern partners base the research agenda on their interests. This finding is similar to that of Simon et al (2007), who argues that research and community-based health research generally is rooted in Western scientific knowledge and disease models that may not be relevant to local settings.

Partner resources are the contributions of the people involved in the work and include their skills, time, reputation, social connections, attributes, and values. Calls for international partnership argue that actors working in isolation cannot tackle complex health challenges such as HIV/AIDS (Brinkerhoff, 2002). Participant's motivation to reach the 90-90-90 target reinforces the call to work jointly in the fight against health challenges using both partner's resources. Corbin et al, (2013) found that diversity in partner resources affected functioning positively. The findings from the example above, of an HIV/AIDS organisation's history of North-South partnership, demonstrate how local, contextualised knowledge, partnered with a properly aligned Northern partner, can solve real problems that may have been overlooked by each of the actors working alone. Findings from the present study reveal that Southern partner's contribution to partnerships is knowledge of local communities, network building, and local expertise.

Financial resources are the monetary and material resources that contribute to the functioning of the collaboration. Findings from the present study show that the most important factors that facilitates health research collaborations are financial resources. Northern partners provide 90 percent of the financial support, while Southern partners implement health research activities. Lasker et al, 2001 and Corbin et al, 2013, also found that financial resources are vital for the success of a partnership. Zahner's (2005), study of health system partnerships found that many partners contributing financially to the partnership were significant predictors of successful implementation of partnership plans. Despite the availability of financial resources from Northern partners, respondents in the present study indicated that funding mechanisms where 90 percent of the funding was from Northern partners are problematic in most partnerships as it often leads to power imbalances. This kind of funding mechanisms may lead to poor capacity building and inaccessibility of results from samples/data that could facilitate research progress for most developing countries as observed by Lee and Asagba, (2014) and Dean et al, (2015). Whereas most studies have called for more financial resources from Northern partners, findings of this study reveal that one-sided funding mechanisms cause unequal power relations.

5.2 Throughputs

Once inputs enter into the collaboration, they begin to interact with one another in different ways. Corbin et al (2013), argues that given the dynamic and holistic depiction of the BMCF, it can be difficult to know exactly where to report various findings given that observations can be made of how everything is connected when examining each individual element of the model. Findings of this study confirm that some elements in the BMCF may appear in more one process of the model i.e. input, throughput and output. For example, power relations begin to manifest at the input level where there is an unequal contribution of financial resources and interacts with leadership in the throughput. The significant findings of this research presented in this section relate to the interaction between power, and how it leads to the delegation of roles and responsibilities and dictating of budget expenditures and the research agenda.

Much of the literature on North-South partnerships are focused on power differentials between Northern and Southern partners. Oliver et al (2016), reveal that partnerships are often relationships of power with some degree of asymmetry between partners. Findings from this study also reveal the existence of power imbalances as revealed by Walsh et al (2016), who attributed the practice of researchers willing to ‘tolerate’ power imbalances due to lack of funding from Southern governments to conduct health research. However, a different finding of this study on the willingness of Southern partners to tolerate power imbalances is that individuals also have personal ambitions and goals. These personal goals and ambitions include the need to stay on the partnership for academic advancement such as publishing in international journals, which leads to career advancements. These goals and ambitions may at times downplay power inequality.

Another issue presented in the literature on North-South partnership is post-colonial relations in health research partnerships, typically characterised by the delegation of partner roles and responsibilities, dictating of budget expenditures and research agendas. Southern partners have the responsibility of implementing research activities on the ground while Northern partners decide how financial resources are spent and which area of research partners go into. These partnership roles and responsibilities in some partnerships are what brings about challenges in terms of power imbalances where Southern partners are mostly delegated lower tasks such as data collection while Northern partners are mostly involved in the analysis of data and publication of the study results. One respondent in the study compared this unfair delegation of roles and responsibilities to ‘donkey work’. Similarly, interviewees in Parker

and Kingori's (2016), study expressed a similar concern of having being relegated the role of "a glorified field worker" responsible for collecting data but being excluded from the creative science. Although none of the interviewees linked power imbalances to post-colonial relations, the term 'donkey work' eludes clearly to unequal relations between partners in North-South health research partnerships. This unevenness in the allocation of tasks and responsibilities creates synergies for Northern partners who receive recognition for their contribution and at the same time creates antagonism for Southern partners.

Jones and Barry (2011), found trust to be essential to the production of synergy and recommends that trust-building practices be purposefully built into the functioning of the partnership at the beginning and maintained throughout its work. Findings from this study reveal that hidden agendas and lack of trust and transparency are factors that hinder success in health research collaborations as reported by John et al, (2016). This lack of trust between partners leads to a lack of shared ownership of health research data and intellectual property. As Northern partners take possession of health research data, ethical concerns arise around who has the right and authority to decide how data should be interpreted and shared (Bull et al., 2015; Butler, 2004). In Kenya, for example, a dispute, which eventually ended up in a court, involved a Kenyan researcher alleging fraud and theft of his research materials against eight Oxford University scientists. The stolen material consisted of children's' blood and tissue materials, which were allegedly taken from a Nairobi orphanage's laboratory (Butler, 2004). Respondents felt there was a greater need for effective and regular communication with clear memoranda of understanding at the beginning of the partnerships stipulating how data should be shared and who makes decisions regarding data sharing and dissemination as a way to reduce such conflicts.

An addition to the BMCF highlighted by this study is how ownership operates across the collaborative environment from ownership of resources, ownership of the partnership and ownership of study findings. Similarly, Katisi et al (2016) found that key influences in the success or failure of partnerships are financial resources, 'ownership' and the target. The findings from the example above, of the partnership between the government of Botswana's Ministry of Health and two international organizations, demonstrate how ownership of the program, contextualised knowledge, partnered with a properly aligned Northern partner, can solve real problems that may have been overlooked by each of the actors working alone.

Effective and regular communication is one of the key pillars that hold a partnership together, without it, it is almost impossible to maintain effective functioning in a partnership. The findings relevant to communication reported in this study mainly focused on communication with Northern partners. One particular successful mode of communication mentioned was face-to-face communication. The use of face-to-face communication confirms other study findings on the value of such interaction and as a preferred mode of communication (Corbin, 2006; Endresen, 2007). Good communication has also been noted as important for successful health research partnerships by John et al (2016), with the lack of these skills or miscommunication viewed as impediments to a successful international health research collaboration. Through communication, partners avoid tension in the partnership and able to negotiate their involvement in partnership and discuss challenges.

Leadership is often cited as a key element in the creation of successful partnerships (Weiss et al., 2002; Jones and Barry, 2011; Parker and Kingori, 2016) and is a moving force in any collaboration responsible for achieving success. Leaders of partnerships need key attributes to provide good leadership. Major attributes of good leaders described by respondents include inspiring leaders, hardworking leaders, good communicators, leaders who value the local team, transparent and trustworthy leaders and leaders who are able to motivate others. Additionally, international health research partnerships are commonly led by Northern investigators who come from resource-rich countries while Southern partners participate with few research skills and resources as reported by Muldoon et al, (2012). Respondents in this study indicated the lack of local leadership in partnership and further emphasised the need for progressive leadership, which is the gradual handing over of leadership to local researchers. This study further illustrates that leadership alone cannot lead to success but good leadership, which allows for the active participation of collaborators called 'integrative' leadership by Silvia and McGuire (Silvia and McGuire, 2010).

Maintenance refers to the activities that keep the partnership itself running. According to the BMCF, these activities do not intend to affect the mission, they serve the purpose of supporting the work by doing things such as seeking more funding, reporting on finances and supporting partners through capacity-building (Corbin et al., 2013). An important issue discussed related to maintenance in the literature on North-South partnership relevant to power between partners is accountability, which is typically characterised as a one-way street where Northern partners require transparency and Southern partners have no choice (Harrison, 2002, Mommers and Wessel, 2009). This is how the participants of this study

characterised their relationships with Northern partners, where partnerships would end if Southern partners failed to account for how financial resources were spent or if funds were mismanaged. Findings from this study on one-way accountability are closer to that of Harrison (2002).

Capacity building has been acknowledged as key in partnerships (Franzen et al., 2016). Muldoon (2012) argues that the assumption implied in many collaborations that capacity needs to be built in the south while Northern researchers are always ‘perfectly qualified’ does not hold. It undermines the opportunity for change when Northern personnel, as ‘capacity providers’, are unable to admit to need, and Southern researchers, as ‘receivers’, are not acknowledged for existing capacity. The situation is further exacerbated if the message is that Southern need is caused by inferiority of abilities rather than simply a skills or technology deficit. Noticeably, some respondents reported that their capacity was often built on the assumption that they do not know and Northern partners are superior to their counterparts, thus creating a paternalistic kind of capacity-building which creates a north-south dependency. This partnership model mirrors a post-colonial relationship based on old traditions of Northern superiority over Southern partners described by Okeke, (2016), as the ‘little brother effect’ and as ‘Cinderella and her stepsister’ by Jentsch and Pilley (2003).

5.3 Outputs

According to the model, there are two types of output; synergistic and antagonistic outcomes (Corbin, 2013). The data from the present study show that both positive interaction and negative interaction exist at the same time.

5.3.1 Synergy

The synergy that a partnership can achieve is more than an exchange of resources among its partners. When partners effectively merge their perspectives, knowledge, and skills to create synergy, they create something new and valuable (Corbin et al., 2013; Weiss et al., 2002). The results showed that working with Northern partners mobilises the necessary resources for infrastructure development. An example is where new laboratory facilities have been built to conduct drug resistance testing in HIV/AIDS. Respondents also felt they were making differences in areas of healthcare through the generation of evidence to develop interventions targeting local health needs. The success of these partnerships offered Southern researchers the opportunity to gain useful skills which enable them to advance their professional careers and achieve their goals. As Southern partners engage in more research activities, Northern

partners also expose them to networks and the process of obtaining funding for new research. All of these findings confirm those of previous studies that used the BMCF, which have identified the ability of synergy to generate more positive interaction and greater (Dosbayeva, 2010; Corbin et al., 2013; Katisi et al., 2016).

5.3.2 Antagony

Many partnerships encounter obstacles while attempting to establish good working relationships between partners, create viable plans, and implement interventions (Weiss et al., 2002; Corbin et al., 2013). Antagonistic outcomes are the most undesired outcomes. It is when partners get results even worse than additive results (Corbin et al., 2013; Katisi et al., 2016). The study revealed that negative processes in collaborations were caused by unequal power relations. These unequal power relations appear in the literature related to negative processes in agenda-setting, accountability and trust (Crane, 2010; Corbin et al., 2013; Walsh et al., 2016; Katisi et al., 2016). The implications of power on partnership results from unequal distribution of research rewards which may lead to authorship and publication challenges as revealed by Canario Guzmán et al, (2017). This study also confirms the existence of authorship and publication challenges and lack of access to health research data generated from health research collaborations, which cause mistrust, and a sense of exploitation. A similar conclusion reached by Emanuel et al (2003), was that little fair distribution of research rewards among partners could generate resentment, mistrust, and a sense of exploitation. Another challenge is an unrealistic expectation from Northern partners and one-way accountability, which have been reported by (Corbin & Mittelmark, 2008; Corbin et al., 2013).

5.4 Implications for Policy and Practice

The present study has practical implications for policymakers in health research collaboration and for collaboration evaluators. As noted previously, partnerships are becoming increasingly widespread as a way of addressing complex health issues, yet many collaborations still experience challenges realising their full potential.

The National Health Research Authority (NHRA) needs to play a critical role in reviewing international research collaboration agreements. The fact that a project is conceived as an international collaboration does not indicate that it will conform to the ethical perspective of 'collaborative research'. In its ACT, NHRA could elaborate how the research should achieve the aims of a truly collaborative research, including answering questioning whether the

research conforms to sharing data, recognition of local authorship, capacity-building activities, sharing benefits, local authorities represented, and fair and transparent research contracting policies and practices. NHRA in its Act of 2013 should also identify minimum requirements to consider valid and acceptable collaborative agreements and their demands should be proportionate to the type, scope, and funding of research.

In terms of Research Ethics Committees (RECs), there is a need for them to be trained and become familiar with critical elements in health research partnerships such as data sharing and evaluating research that involves collaborative arrangements. This kind of training should be performed both at the national and regional levels to ensure a common understanding of the subject matter by different RECs for the purpose of harmonisation across different African countries.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

In this chapter, the conclusion and the recommendations for stakeholders are given.

6.1 Conclusion

This study explored the experiences of health research stakeholders with international health research collaborations in Zambia. The idea behind achieving partnership goals depends on how well partnerships operate. Partnership functioning can be analysed through the relationships of those involved and through the partnership activities. Based on their experiences, stakeholders identified factors of particular importance in North-South health research collaboration.

To strengthen the ability of partnerships to realise the full potential of collaboration, it is important that participants in partnerships know what influences the ability of partnerships to achieve synergy. Inputs like financial resources, mission and partner networks influence the outcome of a partnership. A combination of inputs by partners brings progress towards achieving set goals whereby partners mobilise necessary resources for infrastructure development, knowledge generation for policy development and designing health interventions needed to address local health needs. Meanwhile, many partnerships still struggle to make the most of the collaborative process and accomplish their goals.

Lack of power-sharing and trust leads to ethical issues around who has the right and authority to decide how data generated from health research studies should be interpreted and shared and how financial resources are spent. Publication and authorship challenges occur where one partner gains recognition for another partner's work. These challenges create a collaborative environment, which does not nurture trust caused by leaders who are untrustworthy. Further, power is critical for partnership functioning because it is likely to be associated with the ability of partnerships to actively engage diverse partners, to create an environment that fosters productive interactions between partners, and to facilitate meaningful participation in the partnership's work. However, unequal power relations that often favour Northern partners whereby 90% of the funding comes Northern partners may limit Southern partners to doing less rewarding tasks such as data collection.

An ideal North-South health partnership for health research is, thus, one that is based on the common mission, sufficient financial resources, and negotiations around challenges. This

kind of partnership is supported by a greater commitment and support to equal participation, accountability, benefit sharing, commitment to the goal, dialogue, and sustainability.

6.2 Recommendations

- I. Efforts should be made to ensure that there is uniformity in the governance of health research collaborations throughout Africa. This will enable easy ethical issues in relation to data/sample sharing and authorship and publication challenges.
- II. There should be concerted efforts in ensuring the principles of good collaborative partnerships in developing partnerships with both local and international researchers. This should involve sharing responsibilities, planning, conducting, and overseeing research.
- III. Northern partners need put in place measure to develop capacity and skills training for local researchers to improve power relations between partners
- IV. There is need for strong commitment from the Ministry of Health to allocate financial resources towards health research in its budget following the Bamako Declaration of 2011.

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APPENDICES

Appendix A Information Sheet

Title: EXPERIENCES OF HEALTH RESEARCH STAKEHOLDERS WITH INTERNATIONAL HEALTH RESEARCH COLLABORATIONS

INTRODUCTION

This serves to inform you that this study is conducted by Tulani F.L Matenga, a masters of Public Health student in the department of Health Promotion at the University of Zambia.

PURPOSE OF THE RESEARCH

In this study, I am investigating the experiences of local health research stakeholders involved in international health research collaborations, exploring functioning of international health research collaboration. The gathered information may contribute to strengthening the National Health Research Act of 2013, which has not been fully implemented. It is hoped that the findings of this study may also be used by stakeholders to address some of the inequities faced by health researchers in the North-South collaborations and ensure that research in health is not set on the priority interests of the sponsoring foreign institutions rather than on the urgent health needs of the host country.

WHY YOU ARE BEING ASKED TO PARTICIPATE

I am asking you to participate in this study because of the experience you already have from health research involving Zambia and a Northern country.

PROCEDURES

If you agree to participate in this study, you will be asked to share your experiences on the health research that you have taken part in. during the interview you will be asked a number of questions and will be required to openly discuss this.

RISKS/DISCOMFORTS

If you agree to take part in the study, there is no physical harm to you, however you may have to recall some experiences that may have caused you emotional distress, or otherwise feelings of discomfort or embarrassed.

BENEFITS

If you agree to participate in this study, there are no direct benefits to you but you will be contributing to the understanding of how health research collaborations function.

CONFIDENTIALITY

Data collected from you will be kept strictly confidential and can only be shared with your permission and anything you say will be kept completely confidential during the interviews. Your name will not be used to identify you and the information collected. I would greatly appreciate your honest response during the interview.

PARTICIPATION

Your participation in this study is voluntary. You do not have to answer any question you do not want to answer. You can choose to end participation in the study any time you want. You have the right to clarification on any question you do not understand.

<u>For Ethical Queries please contact</u> The Secretary, Ethics Committee Telephone: +260-1-256067 Telefax: UNZALU ZA 44370 Fax: +260-1-250753 Email: unzarec@zamtel.zm	<u>For any queries please contact</u> Tulani F.L Matenga Plot 445/100 Ibex Hill Cell: +260 973153828 Email: matengatulani@yahoo.com
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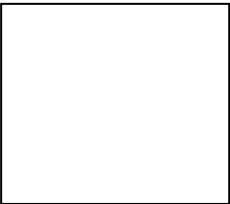
However if you would like to contact an independent party please contact my supervisor: on Cell: +260971194852 or Email: mweemba2@yahoo.com.

Appendix B Informed Consent

Your signature (or thumbprint/mark) on this form means:

- You have been informed about the program’s purpose, procedures, possible benefits and risks.
- You have been given the chance to ask questions before you sign.
- You have voluntarily agreed to be in this program

Name of Participant Signature of Participant Date

Print thumb 

Witness (in case of thumb print) _____ sign _____ date _____

Appendix C Interview Guide for National Health Research Authority

I stage – Introduction

1. Can you tell me about your work in this organization/institution? How long? Position?
2. How did you begin working with the organization/institution?
3. Can you tell me about the institution? Its aim? Field of work?

II Stage –Regulation of Health Research Collaborations

4. What would you want as regulators in terms of collaboration among researchers?
5. What partnership processes support and/or inhibit the engagement of local health researchers in the implementation of collaborative health research?
6. Can you tell me about the National Health Research Act of 2013 and what role it has in the functioning of international health research collaborations? (concerns on export, storage and reuse of human biological samples in international health research collaborations)
7. Do you have a framework to assess the functioning of international health research collaborations?
8. What is the role of the National Health Research Authority in health research collaborations?

Appendix D Interview Guide for Organisation personal at management and mid management level

I stage – Introduction

1. Can you tell about your work in this institution?
2. Can you tell me about your current organization/institution that you are involved in terms of health research? Its aim? Field of work?
3. Can you tell me about your partner organization/institution? (funding organisation)

II stage – inputs

4. What does your organization/institution contribute toward the collaboration?
5. What does your partner organization/institution contribute?
6. What is the mission of the collaboration you are currently working on?

III stage - processes

7. What projects have you worked on together? Are they ongoing?
8. How do you communicate with them? Phone? Email? Visits? How often?
9. Who is the “leader” of this group? One person? A committee? Negotiation?
10. Can you think of a particular occasion that you were impressed with the relationship?
11. Can you think of a particular occasion you were disappointed with the relationship?
12. What limited your ability to success?
13. What factors hinder successful health research collaborations?
14. What factors support successful health research collaborations?
- 15 Can you describe an ideal partnership between northern and southern partners?

Appendix E Interview Guide for Ethics Committee Member

I stage – Introduction

1. Can you tell me about your work in this organization/institution? How long? Position?
2. How did you begin working with the organization/institution?
3. What sort of training have you undergone? (your career)
4. Can you tell me about the institution? Its aim? Field of work?

II Stage -Regulation of Health Research Collaborations

5. Is there anything that speaks to what is the ideal collaboration in the current ethics regulations?
6. Does the ethics committee have guidelines for monitoring international health research collaborations?
7. what factors hinder successful health research collaborations
8. What factors support successful health research collaborations
9. Do local health researchers have the capacity for managing health research collaborations?
10. Does your institution have well defined mission and an operational health research strategy to guide health research collaboration?
11. Can you describe an ideal partnership between northern and southern partners?

Appendix F Interview Guide for Local Health Researchers (Academic institutions)

I stage – Introduction

1. What has been your involvement in health research partnerships in Zambia? - Your career in health research. (Share your experience, background, particular position relating to the topic, etc.)
2. In your experience what are some of the benefits of health research and working with partners?

II stage - processes

3. What projects have you worked on together? Are they ongoing?
4. How do you communicate with them? Phone? Email? Visits? How often?
5. What contributes to the outcome of collaborations?
6. In your experience can you describe how a partnership operates (in terms of contributions of partners and the motivation for partners)
7. Who is the “leader” of this group? One person? A committee? Negotiation?
8. What roles and responsibilities do southerner researchers have in north-south health research collaborations?
9. Can you describe the relationships that you have had with your Northern partner? (in terms of equality-can you say there is equal partnership)
10. What do you think have been the greatest accomplishment of working with Northern partners?
11. Can you think of a particular occasion that you were impressed with the relationship?
12. Can you think of a particular occasion you were disappointed with the relationship?
13. What limited your ability to success/ fail?

IV Stage IV- Concerns in health research collaborations

14. In your experience with the current collaboration (or previous), what are some of the challenges that you have faced in the collaboration?
15. What do consider as top factors that led to or impeded successful international research collaborations?
16. In your experience who makes the major decisions regarding the collaboration?
17. Can you describe an ideal partnership between northern and southern partners?

Appendix G Ethical Clearance from UNZABREC



THE UNIVERSITY OF ZAMBIA

BIOMEDICAL RESEARCH ETHICS COMMITTEE

Telephone: 260-1-256067
Telegrams: UNZA, LUSAKA
Telex: UNZALU ZA 44370
Fax: + 260-1-250753
E-mail: unzarec@unza.zm
Assurance No. FWA00000338
IRB00001131 of IORG0000774

Ridgeway Campus
P.O. Box 50110
Lusaka, Zambia

30th August, 2017.

Your Ref: 051-06-17.

Mr. Tulani Francis L. Matenga,
C/O University of Zambia,
School of Public Health,
P.O Box 50110,
Lusaka.

Dear Mr. Matenga,

**RE: RESUBMITTED RESEARCH PROPOSAL: "EXPERIENCES OF HEALTH RESEARCH
STAKEHOLDERS WITH INTERNATIONAL HEALTH RESEARCH COLLABORATIONS"
(REF. No.051-06-17)**

The above-mentioned research proposal was presented to the Biomedical Research Ethics Committee on 29th August, 2017. The proposal is approved.

CONDITIONS:

- This approval is based strictly on your submitted proposal. Should there be need for you to modify or change the study design or methodology, you will need to seek clearance from the Research Ethics Committee.
- If you have need for further clarification please consult this office. Please note that it is mandatory that you submit a detailed progress report of your study to this Committee every six months and a final copy of your report at the end of the study.
- Any serious adverse events must be reported at once to this Committee.
- Please note that when your approval expires you may need to request for renewal. The request should be accompanied by a Progress Report (Progress Report Forms can be obtained from the Secretariat).
- Apply in writing to National Health Research Authority for permission before you embark on the study.
- **Ensure that a final copy of the results is submitted to this Committee.**

Yours sincerely,

Dr. S. H Nzala PhD
VICE-CHAIRPERSON

Date of approval: 30th August, 2017.

Date of expiry: 29th August, 2018.

Appendix H Permission letter from National Health Research Authority



THE NATIONAL HEALTH RESEARCH AUTHORITY
C/O Ministry of Health
Haile Selassie Avenue,
Ndeke House
P.O. Box 30205
LUSAKA

MH/101/23/10/1

13 September 2017

Tulani Francis L Matenga
University of Zambia
School of Public Health
P.O. Box 5110
Lusaka

Re: Request for Authority to Conduct Research

The National Health Research Authority is in receipt of your request for authority to conduct research titled “**Experiences of Health Research Stakeholders with International Health Research Collaborations.**”

I wish to inform you that following submission of your request to the Authority, our review of the same and in view of the ethical clearance, this study has been **approved** on condition that:

1. The relevant Provincial and District Medical Officers where the study is being conducted are fully appraised;
2. Progress updates are provided to NHRA quarterly from the date of commencement of the study;
3. The final study report is cleared by the NHRA before any publication or dissemination within or outside the country;
4. After clearance for publication or dissemination by the NHRA, the final study report is shared with all relevant Provincial and District Directors of Health where the study was being conducted, University leadership, and all key respondents.

Yours sincerely,

Sandra Chilengi-Sakala
For/Director
National Health Research Authority

RESEARCH

Open Access



Contemporary issues in north–south health research partnerships: perspectives of health research stakeholders in Zambia

Tulani Francis L. Matenga^{1*} , Joseph Mumba Zulu¹, J. Hope Corbin² and Oliver Mweemba¹

Abstract

Background: The late 1990s and early 2000s have seen a growth in north–south health research partnerships resulting from scientific developments such as those in genetic studies and development of statistical techniques and technological requirements for the analysis of large datasets. Despite these efforts, there is inadequate information representing the voice of African researchers as stakeholders experiencing partnership arrangements, particularly in Zambia. Furthermore, very little attention has been paid to capturing the practice of guidelines within partnerships. In this paper, we present achievements and highlight challenges faced by southern partners in north–south health research partnerships.

Methods: A qualitative inquiry was employed using in-depth interviews developed using the Bergen Model of Collaborative Functioning with 20 key informants in Lusaka district in Zambia purposively sampled from a wide range of health research partnerships.

Results: Partnerships produce benefits for southern partners, including evidence generation to influence policy, improved service delivery, infrastructure development and designing interventions to improve the healthcare of populations in greatest need. Most importantly, through partnerships, there is availability of financial resources to accomplish partnership goals. For success to be achieved, there must be effective communication and leadership, values and accountability that go into the process of partnership functioning. Trust interacts with different elements that create partnerships where there is co-ownership of study rewards. Challenging aspects of the interaction are largely due to funding mechanisms where 90% of the funding for health research is from northern partners. This funding mechanism results in power imbalances that lead to publication challenges, dictation of research agenda and ownership of samples and data leading to a general lack of motivation to collaborate.

Conclusion: Mistrust has implications on joint working such that partners find it difficult to work together and produce results greater than their individual efforts. Property rights and resource sharing must be resolved early in the partnership and each partner's contributions recognised. These findings highlight areas that partnerships need to focus on to make the most of guidelines on research partnership with developing countries.

Keywords: Partnership, north–south, health research, power imbalances, achievements, challenges, trust

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Introduction

The late 1990s and early 2000s have seen a growth in north–south health research partnerships, resulting from scientific developments such as those in genetic studies and development of statistical techniques and technological requirements for the analysis of large datasets [1]. This has been largely due to the inability and reluctance of African governments to fund scientific research and healthcare [2], which has resulted in major funding initiatives from northern governments and institutions for research on diseases such as HIV/AIDS, malaria and other neglected diseases responding to global academic interests and local health needs [3].

Partnership brings together multiple stakeholders based on common goals and shared intentions to produce an effect greater than the sum of their individual effects [4]. Health research partnership is an essential tool for improving healthcare in low- and middle-income countries (LMICs) and has the potential to play a significant role in addressing global health inequalities [5, 6]. Health research partnerships produce evidence that delivers population health changes that respond to critical needs and contribute to sustainable development outcomes in the world's poorest countries [7]. Sustainable Development Goal 17, namely to “*strengthen the means of implementation and the global partnerships development*” [8], recognises multi-stakeholder partnerships as important vehicles for mobilising and sharing knowledge, expertise, technologies and financial resources to support the achievement of the sustainable development goals in all countries, particularly developing countries.

While many researchers acknowledge the worthy goals and benefits of international health research partnerships, they have also pointed out its practical challenges and limitations [9]. These challenges include power inequities, communication barriers, diverging research priorities, as well as a lack of capacity-building for southern partners [1, 3, 10, 11]. Centres dedicated to global health research partnerships with universities, hospitals and medical schools in LMICs have been established [3]. Despite these efforts, evidence suggests that partnerships face considerable obstacles in achieving the goals of equitable partnership as a result of power imbalances between northern and southern partners [2, 3, 10, 12].

Scholars describe these challenges in different ways, placing emphasis on the power of the north over the south, using different concepts to express this power discrepancy, e.g. the new imperialism – the north's new way of extending its power [13] and unbalanced power relations [14, 15]. Crane [3] takes a step further by calling north–south partnerships a recolonisation of the south which creates intellectual dependency. This has been accompanied by growing debates on the ethics

of conducting health research amid challenges of equity and concerns of post-colonial science in Africa [11, 16].

Literature on north–south partnerships and on ethics in international health research describes complex historical, political and economic partnerships between researchers from LMICs and high-income countries [1]. This research documents issues involving lack of informed consent, questionable social value and benefit sharing, power and equity differentials, poor community engagement, and limited access to data and export of biological samples [1, 3, 9]. These power dynamics have the potential to exploit research participants and African researchers [17] as they tend to favour collaborators in the north in terms of publication, authorship, capacity-building, data/sample ownership, roles and responsibilities [18, 19]. Meanwhile, research indicates that southern partners end up as data and sample collectors [2, 3]. Such cases may result in the reduction of the southern partner's motivation to participate [20].

The majority of this literature is from stakeholders in northern countries and tends to focus on operationalising international guidelines and principles developed in an attempt to characterise good research practice in north–south health research partnerships [1]. These include the RAWOO Principles [21], the Canadian Coalition for Global Health Research [22], the Swiss Commission for Research Partnership with Developing Countries [23], the COHRED Research Fairness Initiative [24], and the Council for International Organisations of Medical Sciences (CIOMS) Ethical Guidelines [25]. These guidelines have increased amid calls for conducting ethically sound research in developing countries. Despite these efforts, there is inadequate information representing the voice of African researchers as stakeholders experiencing partnership arrangements [1, 26, 27], particularly in Zambia. Furthermore, very little attention has been paid to capturing the practice of these guidelines within partnerships. To address this gap, we conducted a qualitative research study with stakeholders involved in international health research partnerships in Zambia's Lusaka district using a systems model, the Bergen Model of Collaborative Functioning (BMCF), as a framework for framing research questions and analysing the data. This paper aims to present achievements and highlight challenges faced by southern partners in north–south health research partnerships. In discussing the achievements and challenges, we utilise the Swiss Commission KPFE Guide for Transboundary Research Partnerships [23].

Zambia's health research system

Zambia's health research system has undergone a great deal of transformation. In the past, there was no single

governing structure that provided leadership in national health research. Currently, the National Health Research Authority, established under the Health Research Act No. 2 of 2013, is mandated to provide a regulatory framework for the development, regulation, financing and coordination of health research to ensure the development of consistent health research standards and guidelines for ethically sound health research in Zambia. Its functions include research promotion, research regulation, research coordination, research capacity-building, and research dissemination and knowledge translation [28]. The Zambia Forum for Health Research (ZAMFOHR), a non-governmental organisation launched in 2005, is another attempt at improving health research in Zambia. ZAMFOHR has had particular value in bringing researchers, research users, and research and health-equity institutions together to engage in research issues with government [29].

Methods

We adopted a qualitative research approach using face-to-face interviews to explore factors that promote achievements and contribute to challenges in north–south health research partnerships in Zambia. Interviews were conducted with various stakeholders implementing health research activities in different parts of the country.

Participants and recruitment

The study population included participants from various collaborations implementing health research activities related to HIV/AIDS, neglected tropical diseases, hepatitis, reproductive and sexual health, HIV prevention and maternal health. Participants included principal investigators, project coordinators/managers, laboratory managers, clinical researchers, and academic researchers and regulators from the Ministry of Health and the University of Zambia Biomedical Research Ethics Committee. Participants were at different career stages, with 2 researchers having been involved in health research for 3 years and 18 of the researchers having been involved in health research for more than 10 years. Participants from academia and health institutions had multiple roles such that, in addition to being part of health research partnerships, some were responsible for teaching, clinical work and management roles, while those from non-governmental organisations held specific roles such as project managers, laboratory managers and study principle investigators. Despite the participants being located in the capital Lusaka, research activities were conducted in different parts of the country with different institutions.

A purposive sampling strategy was employed, which involved selecting participants based on their expertise [30]. Using purposive sampling enabled the researcher to

select health research stakeholders who played a significant role in at least one or several large international health research partnerships. In doing so, a sample which is known to be information-rich was selected to adequately inform the study. Sampling started by going through the ZAMFOHR online database to become familiar with researchers, institutions and projects/collaborations. Respondents for the interviews were then selected in consultation with the assistant dean's office, University of Zambia, School of Public Health, and the co-authors OM and JMZ based on the inclusion criteria. Researchers were excluded if they had been involved in north–south health research studies operational for less than 1 year at the time of data collection, and where research studies had been completed more than 10 years prior to the commencement of the data collection.

Data collection method

Primary data collection was through in-depth interviews with participants in Lusaka, over a period of 4 months between October 2017 and January 2018. A total of 20 interviews were conducted by the first author. A topic guide developed using the BMCF, which has been employed in similar projects [4, 10, 12, 31], was used to steer the interviews. The interviews covered a wide range of topics from the BMCF and some that emerged during the interviews. The themes explored included personal research career and experience of the collaboration, the mission of the collaboration, leadership of the collaboration, partner's resource contribution, partner's roles, responsibilities, challenges and achievements experienced in the collaborations, and factors of particular importance in collaborations between southern and northern partners. Follow-up questions were also used to get further clarification where necessary.

Data analysis

All interviews were recorded digitally and later transcribed verbatim by the first author. The interviews were 30 to 90 min long. Transcripts and audio recordings were shared with co-authors for review and verification. The use of multiple researchers to validate results was important for checking mistakes [32]. Analysis was conducted mainly by TM and was supported by the co-authors through an interactive process including cross-checking and discussions. Analysis was conducted simultaneously with data collection, with initial analysis of early interviews informing the themes explored in those that followed. We followed a thematic analysis approach, which is a method for identifying, analysing and reporting patterns within data. This minimally organises and describes a dataset in detail and goes further to interpret various aspects of the research topic [33].

Transcripts were read multiple times for familiarisation and several meetings were held in Bergen, Norway, between the corresponding author and JHC, who has experience on partnership functioning. Particular attention was given to patterns and occurrences within the dataset. A codebook was also developed by the first author in agreement with the co-authors, based on the key questions and the theoretical underpinnings of the BMCF [4]. The coding process involved matching of codes with segments of data representative of the code carried out in Nvivo 12 data management software. The coded data was then collected into potential themes. The themes were then reviewed through checking if the themes were in relation to the coded extracts and the entire dataset before arriving at the final themes [32].

The revealed final themes and the results were written according to the framework and literature that made meaningful contributions to answering research objectives. The following organising themes were presented: mission of the partnership, financial resources, partner resources, partner roles and responsibilities, input interaction, and synergy and antagony.

Ethics approval

This study was approved by the University of Zambia Biomedical Ethics Committee and the National Health Research Authority in Zambia. Signed informed consent was obtained from all participants before each interview and all personal details were removed to ensure confidentiality.

Conceptual framework on partnership functioning

The BMCF provides an analytical frame for examining collaborative arrangements [4, 10, 12, 31]. The model depicts the inputs, throughputs and outputs of collaborative functioning as cyclical and interactive processes within the system (Fig. 1). The inputs to a partnership are its mission, partner resources and financial resources. Mission refers to the agreed-upon approach of the partnership to address a specific problem or issue. Partner resources refer to the skills, knowledge, power, commitment, connections and other attributes that human resources contribute to the partnership. Financial resources encompass all monetary and material investments in the partnership [12].

The throughput section is the collaborative context. Inputs enter this context and interact positively or negatively as they work on the maintenance (administrative tasks) and production (relating to the collaborative mission) activities of the partnership. The collaborative context is shaped by the interaction of four elements, namely the inputs themselves as they engage in work, the leadership, roles and procedures, and communication. These four elements can interact positively or negatively, creating dynamic and reinforcing cycles within the collaborative context [12].

The outputs of the collaborative context may be synergy and/or its opposite, antagony, in which the costs of partnership are perceived to outweigh the benefits [4]. The term ‘synergy’ is often employed to describe the

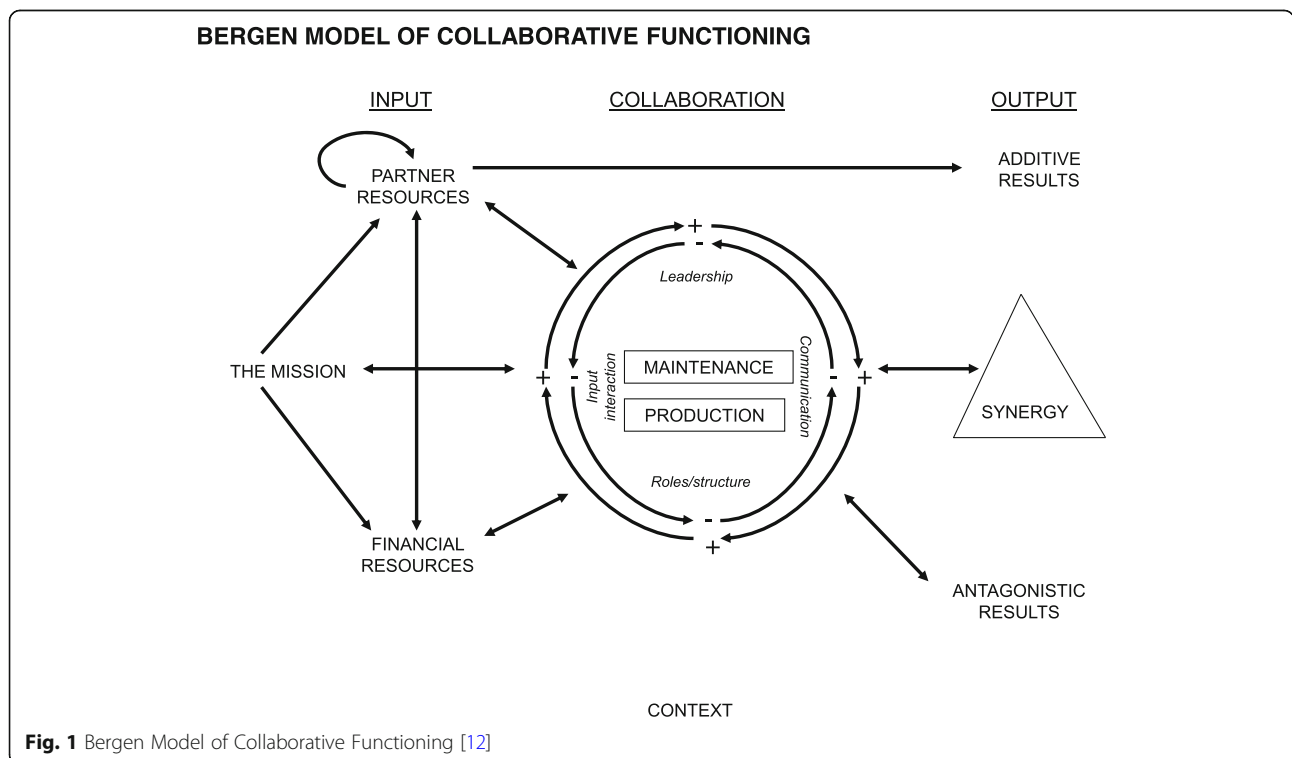


Fig. 1 Bergen Model of Collaborative Functioning [12]

multiplicative interaction of people and resources to solve problems that cannot be tackled by any of the partners working alone, which adds to the partnership [4, 10, 12]. Antagonism is not the mere failure to produce synergy, it is the wasting of partner and financial resources to the extent that more is consumed in the process of collaborating than is produced, it subtracts from the partnerships [4, 10, 12].

The BMCF has previously been used as an analytical frame to examine case studies of several collaborative working arrangements, namely in Tanzania to assess an HIV/AIDS organisation’s history of north-south partnership [12], in Kenya in the implementation of the Community-based Health Management Information Strategy project [34], and in Botswana to explore achievements and challenges of the partnership on a safe circumcision programme establishing how the mission and functioning of the partnership contributed to the actual outcome [10]. In these studies, learning about both synergy and antagonism created an opportunity for partners to reflect on what went wrong and what could have been done differently.

In particular, the study focused on contribution to the collaboration (input), how contributions interact to maintain activities of the collaboration (throughput) and the outcome of the collaboration (output). The study explored some of the elements at each stage of the partnership, i.e. input, throughput and output, that are responsible for creating synergies for one partner while creating antagonism for the other. The model provided the basis for framing the research objective and questions of the study as well as the interview guide. By implication, the data was analysed deductively (based on the main

categories of the model) while at the same time inductively deriving themes from the data.

Results

The revealed themes were written in relation to the global and organising themes in the BMCF and in consultation with literature on health research partnerships that made significant contributions to the research objective. The results presented show how input, throughput and output processes interact with each other in producing both achievements and challenges as summarised in Table 1.

Input

Mission

Health research to improve healthcare The motivation for health research partnerships is to improve the quality of healthcare for the most disadvantaged populations. Through health research, information is generated and used to influence policy and design interventions that directly benefit the community. These achievements are linked to the mission of the partnership. For example, partners were motivated to achieve the 90–90–90 target in the fight against HIV/AIDS; according to this mission, by 2020, 90% of people who are HIV infected will be diagnosed, 90% of people who are diagnosed will be on antiretroviral treatment and 90% of those who receive antiretrovirals will be virally suppressed:

“We have the 90–90–90 target. So it’s a day-to-day thing of trying to come up with new ideas on how we are going to scale up on the viral loads.”
(IDI 07 Laboratory Manager)

Table 1 Themes organised according to the Bergen Model of Collaborative Functioning and from interviews

Global theme	Organising themes	Themes from interviews
Input	Mission	Health research to improve healthcare
		Desire to authentically contribute to mission
	Partner resources	Personal livelihood
		Professional/career goals
Throughput	Financial resources	Southern partner’s capacity to contribute to the mission underutilised
	Input interaction: power	Responsibility of northern partners to build capacity
		Ninety percent funding from northern partners
Output	Synergy	Power to delegate tasks
		Power to dictate timeline
	Antagonism	Power to dictate expenditures
		Communication: transparency
		Infrastructure development
		Authorship and publication of study results
		Access and use of health research data

Establishing of the mission together is important for the partnership because interventions are designed using funds from northern partners. Northern partners have resources which southern partners do not have to develop such health interventions. Working with their northern counterparts, they generate evidence with the intention to influence successful policy development and improve service delivery. This is achieved not only through a supply of financial resources, but also through ideas from multiple partners with different experiences:

“The issue of partnering with people from the north is that there is a strength of funds. The assumption is that we will be able to test interventions and once we find that what we are testing is effective, it works, we hope that it can actually be taken up by relevant authorities. It can be translated into policy.” (IDI 04 Academic Researcher/Scientific officer)

For partnerships to succeed, there is a need for both partners to be fully engaged, although southern partners understand the local systems better as they are closer to the communities experiencing health challenges. Northern partners, on the other hand, have experience working in similar settings that have implemented related projects. As a result, local researchers are better placed to lead the implementation on the ground, being aware of what is acceptable to the communities. Interviewees emphasised the importance of local inputs to ensure that the research is relevant to the communities they targeted:

“It’s key to have strong local input because, at the end of the day, I think that usually, all parties want to improve local health and well-being but sometimes the external party may not know how to do this and might be a bit off in the approach or they might think that something is more priority than it is.” (IDI 09 Principle Investigator)

Desire to authentically contribute to the mission

Health research partnerships have the potential to lead to long-lasting success where findings are translated into action and policy. Accomplishments such as providing the Ministry of Health with information to improve the health systems motivates southern partners. Interviewees indicated their desire to participate in partnership through contribution to scientific knowledge and thus improve their practice:

“My motivation first started with my opportunity to do research courses such as epidemiology which sort of opened up my mind that as a practicing doctor I may not be enough; I need to find answers especially for

common problems. So, I found that collaborating with my colleagues from the north was helping me meet my goals.” (IDI 10 Clinical Researcher)

Despite achievements of international health research partnerships alluded to by all interviewees, many of them were of the view that health research between northern and southern partners was still flawed, with power inequality largely due to funding mechanisms:

“It’s a very good thing to collaborate with international health researchers because they help in the transfer of knowledge but the challenge is that there are unequal power relationships.” (IDI 08 Academic Research)

Personal livelihood For many researchers in developing countries, research is a source of income and employs a number of people to carry out different aspects of the project. If there is a donor who is giving the money, they have the power in most cases and there is a lot of compromise by local researchers receiving the funds. This has often worked to the disadvantage of many southern partners who may not be able to speak about power inequality for fear of losing their source of income:

“Research employs a lot of people, gives people a livelihood, and provides the lights. So we look at it as a source of revenue.” (IDI 09 Principle Investigator)

Professional/career goals In addition to having a wider purpose of the partnership, individuals have personal ambitions and goals. Many of the interviewees benefited at an individual level in terms of professional advancement, where a number of them have pursued higher education through masters and post-doctoral sponsorship. They were now able to publish in international journals and were often called upon by international partners to collaborate on other research projects. Such achievements warranted the need to stay in the partnerships:

“I think we turn a blind eye to certain things and sometimes you pretend like you haven’t seen certain things. You may know that these people are undermining me, but I don’t know maybe it’s for the sake of being on that project and because you are hoping that by virtue of me being there at least, I will be able to publish.” (IDI 04 Academic Researcher/Scientific officer)

Speaking about these power inequalities may lead to some individuals being excluded from the partnership, which most southern partners avoid:

“Sometimes people are systematically excluded from the partnership depending on what individuals think. If they think you are controversial. Sometimes you can even be very constructive but if people think that you are asking too much, that can also lead to you being systematically excluded from the partnership.” (IDI 03 Academic Researcher)

Partner resources

Southern partner’s capacity to contribute to the mission All partners need to contribute to achieving success through funding, implementation, monitoring and building of the knowledge base. Northern partners dependent on southern partner’s local skills and knowledge of the context as they conduct research. This mutual dependency was mentioned by interviewees signifying their contribution in terms of local knowledge, network building and local expertise:

“Money can be there but if the local experts that are going to implement it are not there, that means that money will not yield any results.... One brings the resources in terms of financial resources; we have the local resources to implement the activities as well as the skill.” (IDI 15 Clinical Researcher)

Despite this mutual dependency being echoed, southern partners felt their skills were often underutilised based on the assumption that they lacked the needed expertise to contribute:

“But there is also the aspect of people from the north also having that kind of superiority complex, they kind of feel they know it all.... Everybody has different skills, different strengths and so even the people from the south there is something very unique that they bring on the table.” (IDI 04 Academic Research/Scientific Officer)

The responsibility of northern partners to build capacity By working with northern partners, there is a flow of research skills especially to less experienced young researchers through mentorships programmes. Many interviewees emphasised the responsibility of northern partners to continue building capacity among southern partners as there was still a lack of expertise in developing countries.

“Because this research is being done in Zambia, when they are coming, we expect them also not only to get just data from this country but also, they must build

capacity as well among the locals. So really, to me, when research is coming to the county, in most cases we would want to see that there is a component of capacity-building, and one of them is through the involvement of local researchers.”

(IDI 05 Ethics Review Committee Member)

Financial resources

According to the BMCF, one of the key ingredients to a partnership is a broad range of participation from diverse partners and a balance of human and financial resources. Financial resources are the most important aspect respondents mentioned as being important for partnership:

“We cannot run away from the fact that we need funds. For example, the reagents we use in the lab, we need to procure those things, you need to keep your staff going, they need to survive, infrastructure, all these things. You need power to be running, you need consumables as well, to keep going, all those come with a cost. [Northern partner] has been very good to look at that and ensure that everything is running.” (IDI 07 Laboratory Manager)

Ninety percent funding from northern partners Despite the availability of financial resources from northern partners, interviewees pointed out that a funding mechanism where 90% of the funding was from the northern partner was a challenge, which often led to power imbalances:

“We do not fund research in this country; research is not a very big priority to our country. So most of the money that comes in is from our partners in the north. In addition, our partners sometimes they will say we have money and this money must be used on this and this kind of research. So that the local researchers have to adapt [laugh] to what the demands of the funders are.”

(IDI 05 Ethics Review Committee Member)

Throughput

As the inputs interact during production and maintenance activities through time and roles, power struggles are also manifested. This is shaped by the interaction of roles, leadership and communication. There can be both positive and negative experiences as partners interact to work together.

Input interaction: power

Power to delegate tasks Every type of partnership arrangement has particular structures and separation of roles and responsibilities between partners. Partner roles and responsibilities must be spelled out at the beginning of the partnership. However, these partner roles and responsibilities in some partnerships may sometimes cause challenges in terms of power imbalances where the southern partners remain relegated to the role of data collectors and required to send collected data to northern partners for further analysis:

“I remember one of the conferences we went to outside Zambia. We had been there for 5 days, at the end of the day we were allocating duties, who does what. We were almost done then this professor from one African country just stood up and said, ‘Have you realised that all the donkey work has gone to Africa?’” (IDI 03 Academic Researcher)

Power to dictate the timeline Tension is often created at all stages of the partnerships, including at the start of the research. In setting up procedures, southern partners find themselves facing long ethical clearance processes. This in itself puts southern partners under pressure to meet the expectations of northern partners within agreed timelines. This results from a lack of consideration of the long procedures required to get clearance from institutional review boards:

“Some of the major disappointments have been unrealistic expectations by the northern partners sometimes. I think they have to understand the environment in which we are working in and sometimes it may not be the fault of the project implementation group but just the bureaucracies around achieving what the project is meant to do.” (IDI 14 Project Manager)

Power to dictate the expenditures Lack of funding means that southern partners do not have the power to decide how finances are spent. Northern partners dictate how money meant for research should be spent and on what without the explicit involvement of the southern partner:

“The principal investigator will be a northern partner and, us as Zambians, we are just co-investigators so that in itself sometimes has its limitations in the sense that, whereas we could be involved in the initial budgeting process, you may find that we have no control over the budget per say

and in some cases you find that the money comes from the northern partner. So, our colleagues tend to have an upper hand.” (IDI 10 Clinical Researcher)

Output

Outputs of a partnership are the rewards that come with working together. The BMCF shows the two kinds of outputs in a partnership, i.e. synergy and antagony.

Synergy

Infrastructure development Synergy is the most desired outcome for collaboration. By working together, partnerships have created more than they would achieve working in isolation. Achievements include new structures, such as laboratories, which were never there before and are now serving the wider community:

“These laboratory facilities have enabled tests to be performed in the area of HIV/AIDS and thus improve service delivery to the community. They have been able to build a scientific lab which is still currently standing at the moment and this is a lab where you can do very high tech tests.” (IDI 19 Clinical Researcher)

Antagony

Authorships and publication of study results Fair distribution of authorship has been a concern in international health research partnerships between northern and southern partners where southern partners have been left out of authorship where they have significantly contributed. Authorship practices in international health research can be even more challenging given the variety of roles and responsibilities of researchers from LMICs and high-income countries.

“The worst-case scenario is where some people write nothing completely, but they are part of the publication because they are part of the partnership. So usually young researchers like yourself you are told by the senior research people to say, ‘Do the work, after you have done the work you need to include everyone’. It’s more of like a political decision based on consortium or partnership arrangements.” (IDI 03 Academic Researcher)

Access to and use of health research data Ownership of data and biological samples has been another major discussion in health research partnerships and still continues to present challenges in partnerships. Although so much has improved with the coming of the National

Health Research Authority in regulating health research in Zambia, some partnerships still experience lack of access to health research data once sent to partners for further analysis:

“Once I get to do the quality control, I send that report to [northern university] ... Once those recordings of those interviews go, we do not have access to them. The one who gets to decide what happens to the data after analysis is the (northern)-based principle investigator. Although it will be done in collaboration with the local principal investigator but the main manager of that and control is done by the [northern] partner.” (IDI 11 Project Manager)

Communication: transparency Effective and regular communication holds a partnership together. Without it, it is almost impossible to maintain effective partnership functioning. Transparency and communication are linked to leadership styles where more power is given to the northern partner who makes the major decisions for both partners even though both partners maybe equal applicants of the research grant. Leaders who are not transparent often cause tension in partnerships, which may demotivate partners:

“In a way, these issues rotate around funding and leadership as well because funding, I will say definitely whoever funds calls the shots.... Leadership because when you have all those financing issues, you know there also leadership issues, because if there is strong and good leadership you shouldn't have financial problems.” (IDI 18 Academic Researcher)

The power imbalance described above creates a collaborative environment which does not nurture trust between partners. Interviews pointed out that trust is a pillar on which partnership is built upon and sustained, if the trust was broken through mismanagement of funds, especially by the southern partner, the partnership would often come to an end:

“If at all they [northern partners] sense anything to say that the people we are going to be dealing with may not be handling the monies properly. They may not have the time to invest in the research, they very easily pull out.” (IDI 19 Clinical Researcher)

Discussion

This paper used BMCF as a framework for framing research questions and analysing the data to show how input, throughput and output processes interact with each

other in producing both achievements and challenges. The Swiss Commission for Research Partnership with Developing Countries [23] suggests mechanisms for managing health research partnerships to maximise synergy through 11 principles (namely set the agenda together, interact with stakeholders, clarify responsibilities, account to beneficiaries, promote mutual learning, enhance capacities, share data and networks, disseminate results, pool profits and merits, apply results, and secure outcomes). We discuss the findings using some of these principles and present achievements and highlight challenges faced by southern partners in north–south health research partnerships.

The more ambitious the mission, the more important it is for all parties involved to achieve positive results from their work [23]. In the case of the 90–90–90 target in the fight against HIV/AIDS, the findings suggest that having a clear goal at the beginning of the partnerships helps partners commit to working together. This also serves as a motivating factor and a reason to continue partnering. In addition, working with northern partners mobilises the necessary resources for infrastructure development, knowledge generation for policy development and designing the health interventions needed to address local health needs [6, 26]. In this way, respondents felt that they were making a difference in the area of healthcare. Oldham [35] suggests that access by scientists in the south to knowledge and expertise in the north, with the intention of applying this knowledge to local challenges, provides a significant benefit to research partnerships.

As a result of partnership profits and merits, researchers in southern countries often seek out collaboration with researchers in northern countries to tap their expertise [26]. By way of engaging in research activities, southern partners get exposed to networks and processes of obtaining funding for new research, identified by Corbin et al. [12] and Katisi et al. [10] as the ability of synergy to generate more positive and greater interaction. Furthermore, with international health research partnerships comes a moral imperative to engage in efforts to translate evidence into policies and programmes that benefit populations [26]. When conducted properly, health research becomes a tool for development that benefits the community, especially in the developing world. Thus, equitable and well-governed research partnerships are an effective means through which to ensure that quality research results are translated into policy and have an impact on health disparities [22]. However, such profit distribution becomes challenging in cases where several of the parties involved lay claim to the same piece of the cake [23]. For example, respondents stated that they were active participants in all research activities, from collecting data to producing the

first draft of the report, but left out in activities such as data analysis and publication. A situation that requires commitment to fair allocation of research benefits to all parties involved.

Any partnership ultimately depends on each partner contributing what they are particularly skilled in doing. This division of work makes it necessary to clarify and assign the responsibilities of partners [23]. Southern partners guide implementation of research activities on the ground while northern partners decide how financial resources are spent and which area of research partners go into. For southern partners, active participation in the partnership goes beyond data collection, it includes an overall contribution to the mission through programme implementation and monitoring as well as building the knowledge base. In addition to contributing to the larger mission, southern partners indicated their desire to contribute to the mission by doing tasks that utilised their skills. These partnership roles and responsibilities in some partnerships brings about challenges where southern partners are mostly delegated to lower tasks such as data collection while northern partners are mostly involved in the analysis of data and publication of the study results [36, 37]. One respondent compared this unfair assignment of roles and responsibilities to “*donkey work*”. Similarly, participants in Parker and Kingori’s study [1] expressed a comparable concern of southern partners being relegated the role of “*a glorified field worker*” responsible for collecting data but being excluded from the creative science. Although none of the respondents linked this unfair distribution of roles and responsibilities to post-colonial relations, the term ‘donkey work’ eludes clearly to unequal relations between partners in north–south health research partnerships. This unevenness in the allocation of tasks and responsibilities creates synergies for northern partners who receive recognition for their contribution and at the same time creates antagonism for southern partners.

Capacity-building is a significant benefit of international health research partnerships, leading to strengthened capacity among individuals, institutions and systems [29, 38], and has been recognised as an essential part of working together [11, 35, 39]. Notably, organisations that promote partnerships through research funding programmes, such as Canada’s International Development Research Centre, helps to ensure that research occurs collaboratively and that resources are available to develop capacity in countries that have limited resources [40]. Through such partnership efforts, southern health researchers are able to improve their research skills and advance their careers. However, a major concern over the years has been that, despite increased investment in research programmes with multiple international partners, there is still less advancement in LMICs accruing their own research capacity

and strengthened systems of health to protect their populations, as Ogundahunsi et al. [41] notes. A continued need for capacity-building for southern partners was emphasised, with many considering capacity-building as essential and its absence in collaborative arrangements viewed as undesirable.

The principle of promoting mutual learning in view of capacity development can be even more challenging when trying to create a learning culture that complies with the different perceptions and cultural backgrounds of partners involved [23]. Muldoon [11] argues that the assumption implied in many collaborations that capacity needs to be built in the south while northern researchers are always ‘perfectly qualified’ does not hold. It undermines the opportunity for change when northern personnel, as ‘capacity providers’, are unable to admit to need, and southern researchers, as ‘receivers’, are not acknowledged for existing capacity. The situation is further exacerbated if the message is that southern need is caused by inferiority of abilities rather than simply a skills or technology deficit. Noticeably, some respondents reported that their capacity was often built on the assumption that they do not know and northern partners are superior to their counterparts, thus creating a paternalistic kind of capacity-building which creates a north–south dependency [6, 11]. This partnership model mirrors a post-colonial relationship based on old traditions of northern superiority over southern partners [11], as the ‘little brother effect’ [42] and as ‘Cinderella and her stepsister’ [20]. Such concerns do not fall short of support from the Swiss Commission [23], indicating that the days when research partnerships were understood as vehicles for a one-way transfer of knowledge and technology from north to south are over. The focus should now be on increasing both knowledge and know-how, while at the same time developing the capacities of all parties involved, including all stakeholders and junior scientists.

The principle of accounting to beneficiaries is still challenging in view of the assumption that the one who takes has to account to the one who gives. This upward accountability formula is neither suitable nor effective as it fails to take into account the fact that relevant research delivers benefits both to society and to science [23]. Reports show that, within partnerships, systems are oriented more towards ensuring accountability according to funders rather than adhering to collaboration theories [16]. Being accountable to a specific group of beneficiaries can trigger an important echo, leading to enhanced and genuine partnerships, new research questions, and to broader and deeper dissemination of results [23]. However, this one-way accountability can lead to mistrust between partners, where southern partners are held accountable to northern partners with regards the

use of funds, while northern partners are not. This is a perspective reported by Walsh et al. [15], where donors did not trust southern researchers to manage funds and account for the research budget, instead placing more trust in northern partners. This practice does not nurture trust between partners and is linked to leadership styles where more power is given to northern partners who make major decisions for the partnership. While organisations such as ZAMFOHR are taking a leading role in health research in Zambia [29], leadership in many instances has remained in the hands of northern partners and reflects a real challenge in reality. This evidence suggests that more still needs to be done in building equitable and effective north–south health research partnerships in view of the Health Research Act of 2013 [43], which has called for local leadership in health research.

Jones and Barry [44] found trust to be essential in the production of synergy and recommends that trust-building practices be purposefully built into the functioning of the partnership at the beginning and maintained throughout its work. Its absence raises concerns regarding hidden agendas of partners which can hinder success. This can lead to lack of co-ownership of health research data and intellectual property rights. As northern partners take possession of health research data, ethical concerns arise around who has the right and authority to decide how data should be interpreted and shared [45, 46]. In Kenya, for example, a dispute, which eventually ended up in a court, involved a Kenyan researcher alleging fraud and theft of his research materials against eight Oxford University scientists. The stolen material consisted of children's blood and tissue materials, which were allegedly taken from a Nairobi orphanage laboratory [45]. Respondents felt there was a greater need for effective and regular communication with clear memoranda of understanding at the beginning of the partnerships stipulating how data should be shared and who makes decisions regarding data sharing and dissemination. This builds a sense of mutual trust which enhances transparency in often unequal relationships and fosters the flow of information based on the principle of sharing data and networks [23].

Research priority-setting is a major challenge facing partnerships and has been echoed as often leading to inequitable and unethical partnership dynamics [26]. Common practice is a tendency for the partners with the most access to resources to set priorities based on their own interests, which might not reflect the actual priorities of the countries or communities in which the research is taking place [47]. Similarly, in some countries with weak health systems, foreign donors often set priorities without consulting local stakeholders [48]. Costello and Zumla [16] state that foreign domination in setting research priorities and project management may have

negative consequences which outweigh the obvious benefits of research findings. The Ministry of Health, through its National Health Strategic Plan 2017–2021 [49], has set national health research priorities to guide governments and cooperating partners funding health research institutions, as well as researchers and other stakeholders, on the areas of research that would best respond to Zambia's health needs; nevertheless, priority-setting has largely remained in the hands of the funder. Cases are rare where collaboration involving two research groups that contribute equally to funding have an equal scientific capacity and share the same interests. In such cases, asymmetry is inevitable and a fact, but its negative impact can be reduced by jointly determining research questions, approaches and methods [23].

At the root of these disparities obstructing the full utilisation of the Swiss principles is the power struggle experienced by southern partners due to funding mechanisms that have long dominated collaborative arrangements, where 90% of the funding comes from northern partners and sent directly to research institutions, usually without an explicit requirement that the research is aligned to national priorities [15]. This kind of funding mechanisms may lead to poor capacity-building and inaccessibility of results from samples/data that could facilitate research progress for most developing countries [14, 50]. Similarly, outdated practices around intellectual property and publication rights means that partnerships may have little benefit for less-resourced partners and the communities they represent. This study, like many others [12, 15, 26, 51], confirms that power imbalances and inequities exist at each stage of the research process – from funding to agenda-setting, data collection, analysis and research outputs – which outweigh the benefits of the partnership. This in itself may generate resentment and a sense of exploitation for southern partners [52].

Limitations

One limitation of the study is that the study was conducted in Lusaka with a small sample of respondents. Therefore, the findings may not represent the experiences of researchers based outside this study setting. However, the results of the study may be used as a learning resource. Another limitation is that it focused on the experiences of southern partners only. The inclusion of northern partner's experiences would have enabled the study to make a comparison of what partners thought about collaborations. However, there have been several studies that have included northern partner's perspectives and have reached the same conclusion, which gives us confidence that findings are within the larger body of literature. Further, there are few perspectives from the community, who are the ultimate beneficiaries of health research. Research is therefore needed to include the

perspectives of people or communities whom collaborative health research partnerships serve and how they are involved in the research process. Further research is also needed to find out if collaborations have any meaningful impact upon the people or communities they serve.

Conclusion

The existence of challenges in health research partnerships has persisted over the years and co-occur with achievements benefiting one group more than the other. To improve relations in north–south health research partnerships there is a need for leadership styles that foster mutual trust. All actors need to contribute together to achieve success through programme implementation, funding, monitoring and building the knowledge base. From this study, we conclude that two factors have an impact on limiting the achievement of successful partnerships; firstly, lack of trust and transparency leads to ethical concerns around who has the right and authority to decide how data generated from health research studies should be interpreted and shared and how financial resources are spent. Secondly, power is likely to be associated with the ability of partnerships to actively engage diverse partners, to create an environment that fosters productive interactions between partners, and to facilitate meaningful participation in the partnership's work. However, unequal power relations that often favour northern partners can limit the ability of partners to fully engage in activities that produce benefits.

Consideration of factors that may cause challenges in north–south health research partnerships aids in inspiring dialogue and reflection on issues that are rarely the focus in traditional evaluation methodologies. Doing so can further create a new form of partnerships based on trust and transparency led by effective leadership and communication. Further, such a move may also help strengthen national legislation in Zambia, such as the National Health Research Act of 2013, to address the structural inequities and power imbalances in health research partnerships. These findings also highlight areas that partnerships need to focus on to make the most of guidelines on research partnership with developing countries.

Abbreviations

BMCF: Bergen Model of Collaborative Functioning; LMICs: low- and middle-income countries; ZAMFOHR: Zambia Forum for Health Research

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Authors' contributions

TM designed and carried out the research, analysed and interpreted the results, and drafted the manuscript. JHC contributed in the interpretation of data and application of the theoretical framework, revising critical concepts and editing. JMZ assisted in designing the study and recommending literature and editing. OM assisted in the development of the research study, assisted with the identification of key informants and overall research supervision. All authors read and approved the final manuscript.

Ethics approval and consent to participate

The study was approved by the University of Zambia Biomedical Ethics Committee (REF. No 051–06-17) and the National Health Research Authority in Zambia (MH/101/23/1). Signed informed consent was obtained from individual participants before each interview.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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