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Prioritising and planning scale-up research projects targeting non-communicable diseases: a mixed-method study by the Global Alliance for Chronic Diseases upscaling working group

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ABSTRACT

Introduction Governments must scale-up evidence-based interventions to reduce the burden of non-communicable diseases (NCDs). Implementation research can help develop contextually appropriate strategies and optimise interventions for scale-up. We aimed to determine the priorities of the Global Alliance for Chronic Diseases (GACD) 2019 funding round for scale-up research targeting NCD interventions. The research questions were: (a) What was the purpose of the call and what were the specific issues considered by funders when supporting the selected projects? (b) How did the selected research projects align with the objectives of GACD scale-up call?

Methods We undertook a mixed-methods study to examine the projects funded by the GACD in 2019. We completed semistructured interviews with representatives from 5 out of 8 funding agencies and complemented this by reviewing project documents from 21 (78%) of the 27 funded studies. A literature review of scale-up frameworks informed the interview guide and data extraction template. The transcripts were open-coded using thematic analysis to identify critical issues for funders. Data were extracted to identify the common elements considered when planning, implementing and evaluating interventions for scale-up.

Results Interviews with the funders revealed three enabling themes related to scale-up: local research priorities (contextualisation through engagement), capacity building (developing knowledge base) and connections (networking opportunities). We further identified that timelines (more flexibility) and equity (funding low-income and middle-income researchers) could be considered for future funding investments. Multidisciplinary international research teams led the development of diverse studies to address funder's priorities. The detailed plans included a range of implementation frameworks to help develop contextual scale-up strategies.

Conclusions Fundamental to NCD scale-up research are (1) funding opportunities that reflect the complexity and time necessary to enable contextualisation; (2) investment in building multidisciplinary research capacity and leadership and (3) better networking to encourage cohesive action and align NCD-related scale-up research activities globally.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ It is necessary to have research strategies that support the efficient and effective implementation of evidence-based non-communicable diseases (NCDs)-related interventions at scale.

WHAT THIS STUDY ADDS

⇒ Funders supported joint calls that promoted inter-funder cooperation and welcomed funder–researcher networking opportunities to build relationships, align NCD-related research priorities and develop cohesive action.

⇒ Models and theories from implementation, evaluation and scale-up science greatly influenced project designs, with health economics and other social perspectives making important contributions.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Greater flexibility in funding timelines may enable research that includes stakeholder consultation while allocating the time needed to build global multidisciplinary implementation research capacity.

⇒ More equitable funding criteria for research studies, particularly as implementation research capacity grows globally, will help support the scale-up of interventions and close gaps in NCD prevention and control in low-income and middle-income countries.

INTRODUCTION

The rising global burden of non-communicable diseases (NCDs)[1] is mounting pressure on health systems and widening inequities in NCD care, particularly in low-income and middle-income countries (LMICs).[2–4] Prevention and control of NCDs must be addressed urgently to achieve Sustainable Development Goal (SDG) 3.4 which targets a one-third reduction in premature mortality from NCDs by 2030.[5]

Most countries, particularly LMICs, are not on track to achieve their SDG 3.4 goal.[6 7] But implementing evidence-based solutions could help accelerate achievement towards SDG 3.4,[8 9] preventing 39 million deaths and resulting in economic benefits of US$2.7 trillion.[9] This will require additional investment of US$18 billion from 2023 to 2030. While implementation research will assist in developing suitable strategies to enhance the adoption and scale-up of interventions and policies,[10 11] global implementation research skills and capacity remain limited.[12]

The Global Alliance for Chronic Diseases (GACD) aims to address the gap in global implementation research capacity by collaborating with funding agencies to support implementation research for interventions aimed at preventing and controlling NCDs. The GACD's fifth joint funding call in 2019 funded 27 research studies targeting the scale-up of diabetes and hypertension interventions, reflecting a total investment of approximately US$50 million.

We aimed to determine the system-level challenges and enablers in the funding/planning phase of NCD scale-up research studies by collectively examining the funding phase of projects funded through this call.

The research questions addressed were as follows:

1. What was the purpose of the call and what were the specific issues considered by funders when supporting the selected projects?
2. How did the selected research projects align with the objectives of the GACD scale-up call?

METHODS

We used a consistent approach to examine research projects funded through the 2019 GACD call.

GACD scale-up funding call

GACD fosters collaboration and coordination between major international research funding agencies through the development of joint calls to prevent and control NCDs in low-resource contexts. The GACD's fifth joint funding call in 2019 was targeted at 'research associated with the scale-up of interventions for the prevention, or detection and management of hypertension and/or diabetes in LMICs and other vulnerable populations globally'.[13] Proposals had to be aligned with current or planned commitments at a regional or national level to scale-up evidence-based interventions (EBIs) across health or other sectors. For details, see: https://www.gacd.org/funding/past-call-for-applications/scale-up-hypertension-diabetes.

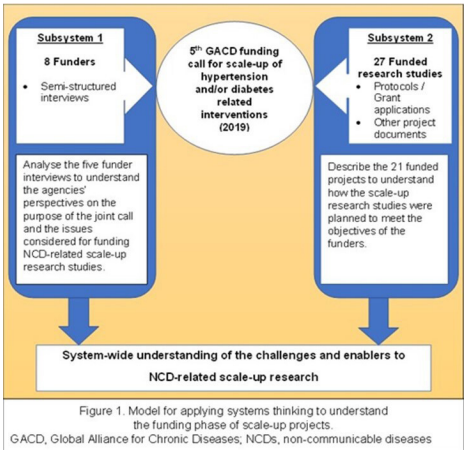

Figure 1. Model for applying systems thinking to understand the funding phase of scale-up projects.
GACD, Global Alliance for Chronic Diseases; NCDs, non-communicable diseases

Figure 1 Model for applying systems thinking to understand the funding phase of scale-up projects. GACD, Global Alliance for Chronic Diseases; NCD, non-communicable disease.

This study comprises the baseline time point of a larger study previously described in detail.[14] We used mixed-method approaches to determine the perspectives of funders and researchers at this time point. Interviews with funders were used to determine the research priorities in this GACD call. This process was complemented by reviewing project documents, provided by researchers, to determine how the studies were planned to address the funders' research priorities (figure 1).

Study setting

This study was a part of the joint research activities by the GACD Upscaling Working Group. The group includes the lead investigators from the projects funded by the scale-up call and other researchers within the GACD network. ARC, RJ and AT constituted the core research team. They are members of the working group but are not investigators on any of the projects funded through this call. Other members of the working group helped shape the development of this work, including interview guides, but were not involved in interviewing participants or analysing data.

Data collection

We defined scale-up as 'deliberate efforts to increase the impact of health service innovations successfully tested in pilot or experimental projects so as to benefit more people and to foster policy and programme development on a lasting basis'.[15 16] The data collection instruments were deductively designed following a literature search on frameworks that have supported the scale-up of complex health interventions. The funder interview guide (online supplemental appendix 1) and the project data extraction tool (online supplemental appendix 2) were drawn by including the common elements featured in the eight identified scale-up frameworks The GACD

secretariat facilitated contact with funders and lead researchers.

Funder interviews

We invited representatives from the eight GACD funding agencies to participate in semistructured interviews to capture their perspectives on funding NCD-related scale-up research studies. We included questions such as definition of scale-up, prioritisation of NCD research studies and issues considered when developing the call. ARC conducted all interviews using Zoom (Zoom Video Communications, USA). Interviews were audio recorded and transcribed, with RJ and AT reviewing a sample of transcripts.

Research project documents

We invited each project's principal investigator (PI) to participate in this study and provide project planning-related documents. To ensure broader project access, we were not prescriptive about requested records, receiving a range of documents, including grant applications, research protocols and other project implementation documents. We also offered PIs the option of completing the tool themselves.

Using our specifically designed tool, we extracted planning details from each project. Details extracted included the location of research team members, project goals, innovation, intervention characteristics, theories and frameworks that supported the research, and whether a pilot phase was included (online supplemental appendix 2).

We returned each summary of the extracted data to the lead investigators for cross-checking for accuracy.

Data analysis

We adopted an inductive approach and open-coded the transcripts to ascertain the funders' perspectives on funding NCD scale-up research.[17–19] ARC independently coded the responses using NVivo (V.12, QSR International, USA). ARC, RJ and AT iteratively reviewed the coding framework for accuracy. Some codes were collapsed or broadened to adjust the resolution of information, as per our study objectives. After completion of coding, we undertook thematic data analysis.[18] This involved sorting codes to identify initial patterns and exploring relational aggregates and thematic associations related to the research questions. ARC identified preliminary findings that were subsequently reviewed and further analysed in collaboration with RJ and AT.

We present descriptive statistics and apply a narrative approach to summarise the common planning elements of these research projects. For confidentiality, findings are presented anonymously for the funders and in a deidentified form for the study teams, without reference to the study or investigators.

Patient and public involvement statement

The study did not involve patients and the public since we deemed these actors were uninvolved in the funding and planning of scale-up research studies.

RESULTS

Representatives from five of the eight funding agencies and investigators from 21 of the 27 projects agreed to participate. We have organised our results into the two subsystems we studied: the funder's call and the researchers who responded with a successful application.

Subsystem 1: funders

Four of the five agencies were bilateral funding agencies from HICs that had participated in previous GACD funding rounds. The fifth funding agency was based in an LMIC. The call, as described by the following comment, aimed to fund research to understand how to implement and scale-up EBIs effectively and efficiently.

> But for (name of agency) what scale up means is the study, the research that goes into studying implementation science platforms and procedures that will take something that is proven effective, understand it in a new context, to scale the research to further our knowledge base around it. But not from the standpoint of just we are going to implement this new program. (F5)

Theme 1: NCD scale-up research supports programmes that reflect local population needs, address social determinants and are tailored to the implementation context

Funders recognised the importance of supporting research studies that addressed local community health needs, while also considering broader issues, such as housing, lifestyle and diet, which can contribute to the increasing burden. Funders stressed that researchers needed to emphasise understanding the multiple realities and diversity in the local context, to ensure that local population needs were addressed effectively.

> But at the same time in a metro, in a 20 km radius, you can have from super rich to super poor… through this scale-up call, we are hoping to specifically address these challenges. (F4)

For this call, funders chose not to define 'scale-up' narrowly because context-specific factors and unique experiences could be valuable for project success.

> …we have never been wedded to any strict definition. We prefer the research project to come along and then for the experts to review it and decide if it is any good. (F2)

Theme 2: funding implementation research studies are necessary to build the knowledge base and evidence around scalability and sustainability of interventions to prevent and control NCDs globally

Funders view clinical trials, small-scale implementation research studies, and large-scale implementation research studies as a funding continuum. The GACD calls focus on using implementation research, the scientific

study of methods and strategies that facilitates uptake of evidence-based practice, to provide evidence on effectively implementing these interventions. The 2019 call prioritised the next phase, that is, large-scale implementation of EBIs. For this analysis and reporting, we refer to research for large-scale implementation as scale-up research. The following quote illustrates funders' views that, for scale-up, researchers should focus on determining the long-term impact of interventions.

> We do a huge amount of implementation trials. They fall into the bucket of a clinical trial. Understanding how it impacts human behaviour, human health in general, long-term outcomes, all of these things are what we're studying. (F5)

They further explained that while research can help develop EBIs, implementation research for scaling up must focus on understanding the challenges and facilitators to the uptake of EBIs in routine practice.

> …. talking about the graveyard of effectiveness studies and this idea that we are constantly funding trials showing that interventions are effective. And there was this real push to go the step further and funding implementation science and find how we can get these interventions being taken up and used by people and actually get the health benefits that are needed. (F2)

As illustrated by the following quote funders explained the critical importance of including specific planning to ensure consultation with stakeholders, including policymakers and community members, to identify their needs and promote uptake.

> … the work of policy and you involve different levels of local governments, the community and so on. But … then able to be brought up to a larger level where that had a bigger impact because that is really the key aim of NCD reduction, is to try to have these things working at scale. (F1)

Funders stressed the importance for researchers to work in close collaboration with all stakeholders throughout the research process to facilitate integration and change.

> … considering what these global partnerships need to have to be successful. Not just some really great academics. But also, industry, government partners, NGOs that work really closely with the study participants or the needed parties. (F5)

Funders further expressed that developing the science for implementation and scale-up research for NCD interventions in global health can provide lessons applicable to other difficult-to-reach populations globally.

Theme 3: joint funding calls and working under a common umbrella enables interfunding agency cooperation and encourages funder–researcher networking

Funders unanimously agreed on the immense benefits of working as an alliance under the GACD umbrella, one being the ability to meet representatives from other funding agencies.

> There are many pluses, but one of the big pluses has been the funder cooperation, relationship that we have between the funders of GACD. It makes working together a lot easier with each other. (F2)

Participating in a joint funding call and undertaking a collaborative review process facilitated the alignment of priorities of different funding agencies and facilitated exchange of knowledge between agencies.

> …running a funding call sometimes is quite a mundane thing—bureaucratic. But [joint calls offer] learning about the different agencies and how they go about doing things. This call text was written in collaboration between everybody. (F2)

The joint peer-review panel reviewed all applications, helped streamline processes and ensure fair assessment using a standard set of criteria, and provided recommendations to funding agencies. But donor agencies made final funding decisions.

> … each agency funds its own projects, but they are all sort of in parallel and the research network exists, which is such a massive positive. (F3)

All the funders appreciated the networking events organised by the GACD, particularly the Annual Scientific Meeting that convenes funders, researchers and implementors from across the calls to interact and share their experiences. These formal and informal interactions helped build communication bridges between funders and researchers, and a better understanding of each other's experiences, while fostering trust between these actors.

> And it is because we get to meet them at the annual scientific meetings, and we get to have dinner with them and… watch them present and interact with the other projects and be part of discussions. (F2)

Funders acknowledged that scale-up and implementation research work were more vulnerable to facing field-related unexpected challenges, which could potentially affect project timelines, budgets and deliverables. They cited COVID-19 as an example of a challenge researchers would have faced during the early implementation stage. While funders anticipated that COVID-19 may have caused delays or changes to the original project plans, they were keen to support researchers to negotiate and navigate any resulting changes to project deliverables.

> We have a very open-door policy because, of course the way I see it, their [researchers] success, is [name of funding agency] success, is [name of country] success. (F4)

Opportunity for improvement 1: increasing the time frame for scale-up research

Despite the funders' acknowledgement of the breadth and complexity of research necessary to support the

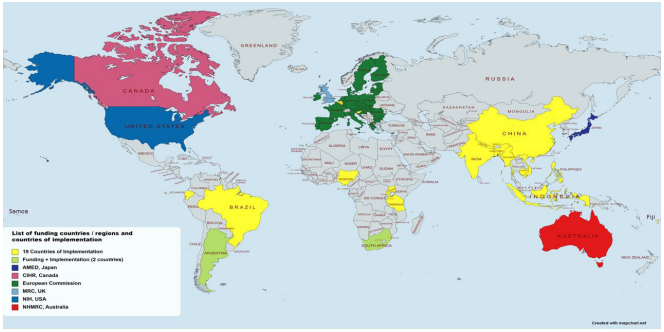

Figure 2 Summary of projects funded in the GACD 2019 scale-up funding round that participated in this study (n=21 projects). AMED, Japan Agency for Medical Research & Development; CIHR, Canadian Institutes of Health Research; GACD, Global Alliance for Chronic Diseases; MRC, Medical Research Council; NIH, National Institutes of Health (National Heart, Lung and Blood Institute); NHMRC, National Health and Medical Research Council

implementation of interventions at scale, the research funding time continues to be viewed within 3–5 years. Such studies are typically considered as follow-on work informed by previous studies.

> We are funding —that implementation has been kind of demonstrated through their earlier research and now they are wanting to take it out. So yes, we have a 5-year funding limit. Essentially that is the longest we will fund anything. (F2)

Opportunity for improvement 2: allowing LMIC researchers to be the primary applicant

The SDGs include attention to equitable care, a tenet echoed in the GACD's philosophy for supporting programmes that target social inequity.[5 20–23] The five funders interviewed represented agencies that had funded fourteen collaborative research studies in this call. Of the four agencies which funded studies outside their country, only one agency was open to receiving applications from researchers based in LMIC institutions.

> We cannot provide our funding to other countries. But (name of HIC country) researchers can come and have joint activities with other countries… (F3)

B. Subsystem 2: research studies

The funded research studies supported diverse programs and interventions

The 21 GACD scale-up projects are distributed across geographical contexts (figure 2, table 1).

Seventeen studies (81%) are being implemented in a single country, and 4 involve multicountry studies, reaching 21 countries (figure 3). Five studies (24%) included implementation within the same country/region as the location of the funding agency.

The interventions being scaled up were diverse, with some focused on prevention only, some on control only (57%), and some incorporating both (19%) (figure 4). Researchers from most studies (62%) included interventions that addressed hypertension and diabetes.

Table 1 Number and location of projects by each funding agency (21 projects)

Name of funding agency	Projects funded (n)	Countries where projects are being implemented
National Health and Medical Research Council, Australia	5	China, India, Indonesia, Fiji and Samoa
Medical Research Council, UK	4	Tanzania and Uganda, China, Brazil, Bangladesh
European Commission	3	Eswatini, Indonesia, Myanmar and Vietnam Cambodia, Belgium and Slovenia
South African Medical Research Council, South Africa	2	South Africa
National Heart, Lung and Blood Institute, USA	1	Nigeria
Ministry of Health, Argentina	2	Argentina
Japan Agency for Medical Research & Development, Japan	2	Tanzania Nepal
Canadian Institutes of Health Research, Canada	2	Ecuador Philippines
	21 projects	21 countries

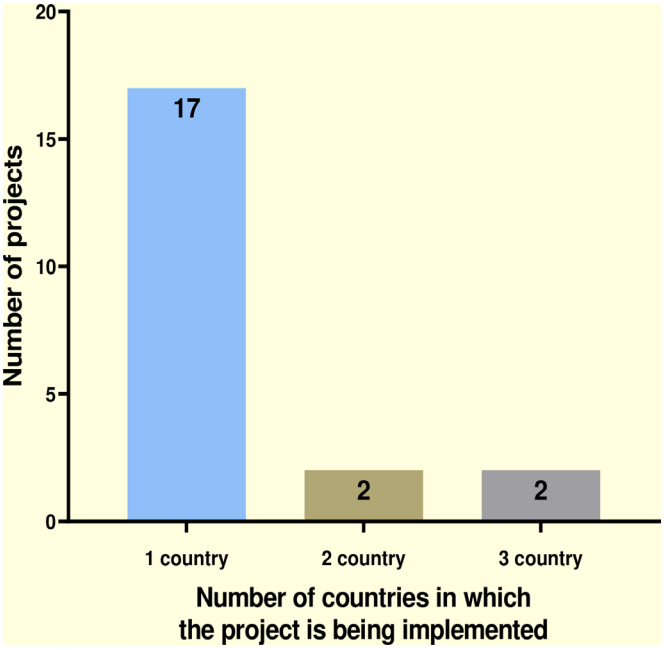

Figure 3 Implementation countries of projects (n=21).

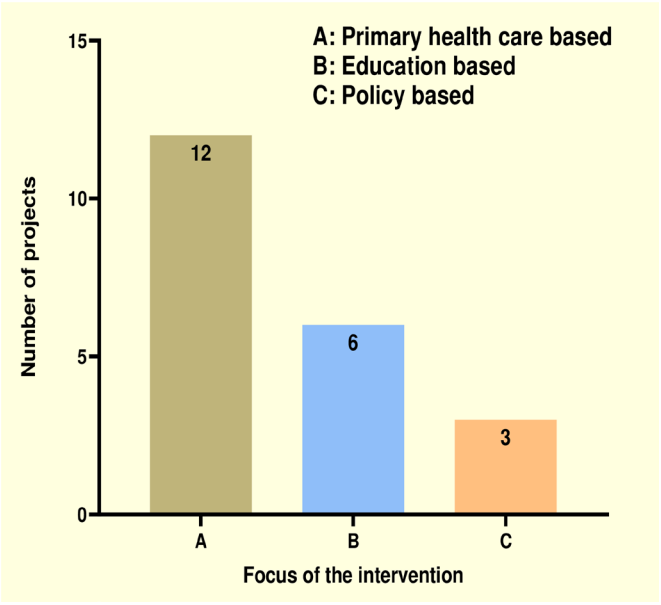

Figure 5 Categorisation of studies based on the focus of the intervention (n=21).

The included interventions had varied focus (figure 5), with most (n=12; 57%) targeted at strengthening NCD primary care. Among these, six (29%) were targeted at providing technology while three (14%) were aimed at strengthening NCD care by integrating with other organisations (eg, integrating HIV, diabetes and hypertension services) or by including WHO recommended Package of Essential Services (PEN) (14%). Six studies (29%) were focused on educating the community (eg, volunteer-led community health assessment programme) while one was focused on educating through a civil society organisation. A third group of studies (n=3; 14%) were focused on addressing upstream policy level changes (eg, scaling up food policies or using the WHO recommended Surveillance, Harness, Adopt, Knowledge, Environment Package.

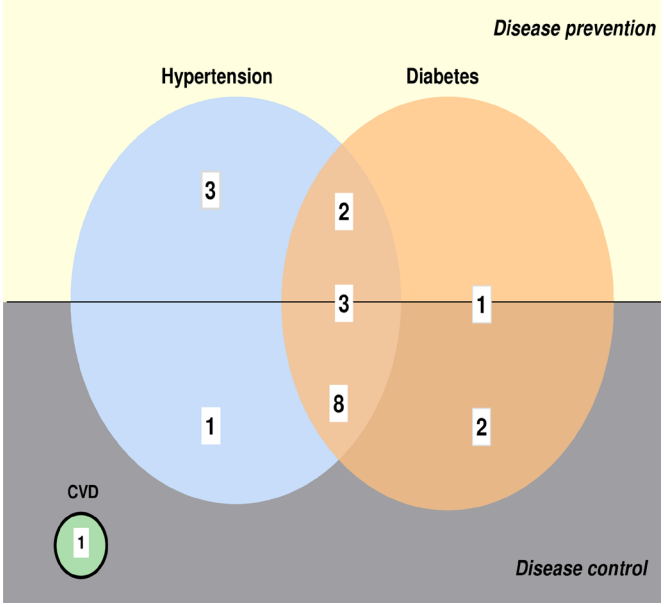

Figure 4 Categorisation of projects based on approach and disease focus (n=21).
CVD, cardiovascular disease

As the interventions were diverse, so were the identified scalable units, including primary healthcare centres (29%), administrative units (19%) and community/village health centres (19%) (figure 6). Approximately half the projects (52%) were based on data provided by a previous pilot study (figure 7). The pilot studies provided evidence on local implementation outcomes but at a smaller scale (eg, within a small region) or located in a different context to where it was being scaled up in the current funding round (eg, transitioning from a rural to an urban setting).

Research plans included stakeholder consultation

Multiple stakeholders contributed to each proposal, and their involvement varied according to the project's goal and the nature of the intervention. The five categories of stakeholders consulted included: (a) patient (12 projects) and non-patient groups (four with patients and community members; (b) government representatives and policy-makers: included by all projects at the federal and regional levels and (c) front-line workers (18 studies) who commonly led the intervention.

In addition to the above stakeholders, some projects consulted with organisations such as National Heart Foundation, National Diabetes Federation, National Pharmacy Federation and insurance companies. Private food manufacturers, retail industry and patient representative groups were also included in the planning and implementation of some studies. Four study teams had included stakeholders from civil society organisations.

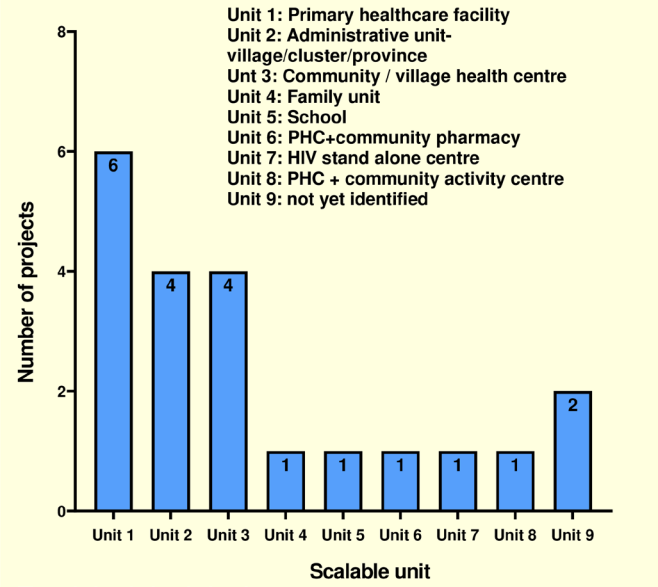

Figure 6 The scalable units used in projects (n=21). PHC, Primary Health Centre

Variance in planning for stakeholder engagement

While all study plans mentioned that they would 'consult with stakeholders,' the details and research mechanisms to support these components varied. Nine studies included specified research plans to map stakeholders and identify implementation strategies to address the challenges and facilitators. The Consolidated Framework for Implementation Research (CFIR) was used in two projects to help identify barriers and facilitators to contextual engagement.[24] Community participation was encouraged using participatory approaches such as Participatory Action Research and Systems Thinking In Community Knowledge Exchange.[25 26]

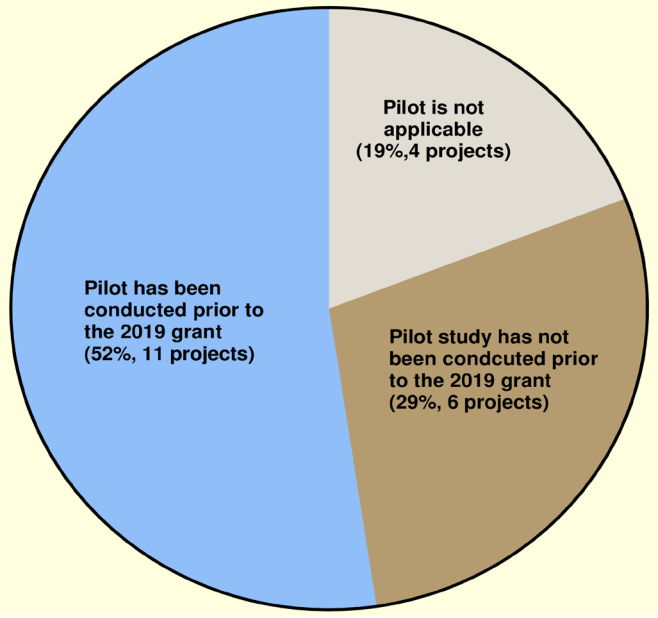

Figure 7 Pilot status of projects (n=21).

Five study teams used specific guidelines to map and guide policy level engagement strategies, such as by including policy stakeholders in grant applications, steering/advisory meetings and workshops, involving them in site selection, and gathering their feedback through qualitative interviews.

Multidisciplinary teams

All the consortia included a team of investigators drawn from a wide range of specialisations, including medicine, nursing, public health, implementation science, global health, epidemiology, economics, health systems research, and political and social sciences to support the complexity of work. There were no specific patterns of type of specialisation across regions.

Use of conceptual frameworks

Twenty projects (95%) incorporated at least one model, and most studies included a combination of frameworks tied to scale-up, implementation, process management and evaluation. Details on the selection and usage of frameworks were not obtained from three studies because the documentation supplied lacked these details.

The commonly used frameworks comprised the following (not an exhaustive list):

- Reach, Effectiveness, Adoption, Implementation, Maintenance (RE-AIM; six studies).[27 28]
- CFIR (four studies).[24 29]
- WHO ExpandNet (four studies).[30]
- Institute of Healthcare Improvement going-to-full scale (three studies).[31]
- Medical Research Council framework for complex interventions (two studies).[32 33]

In addition to diversity of frameworks selected, some teams used more than one framework to support project planning. For example, three of the four studies incorporating the CFIR also incorporated other frameworks. CFIR then provided the supportive framework for guiding specific aspects of research, such as the implementation, or was used to support distinctive components of stakeholder mapping. Nevertheless, in one study, the CFIR was selected as the overarching framework to support the entire planning and implementation research. Similarly, the RE-AIM framework was used as an overall framework (four studies) or to plan the evaluation component alone (two studies). Some researchers used additional frameworks to plan specific aspects of their research, such as political economy analysis, gender and equity, and stakeholder engagement.

International, collaborative research teams

All research consortia included a mix of researchers across institutions in both implementing and HICs, with research planned collaboratively across these teams. All projects provided details of regular training on data collection and qualitative/quantitative analysis. Further, governance structures for each project clearly described how the team for each work package would collaborate

and how this package fit with other work packages across the course of the study. The information flow developed through these governance structures supported two-way learning in context, implementation research and scaling up.

DISCUSSION

We found that funders aimed to fund implementation research programmes that involved identifying strategies for local contextualisation of the intervention, with the larger goal of effecting policy change. Funders were supportive of programmes that considered the needs of both the population and the stakeholder while developing strategies for scale-up. Funders provided flexibility to plan research according to local needs by deliberately not specifying a definition for scale-up nor required research processes. The individual studies were diverse, comprising varied interventions for diabetes, hypertension, and cardiovascular diseases (CVD) control, and incorporated different prevention and control approaches. Furthermore, the research study plans involved multidisciplinary approaches.

The application of conceptual frameworks in project designs highlights the utility of models as a tool for guiding project thinking, planning and execution,[34–37] and in helping to address strategies by systematically identifying factors that affect scale-up.[38–41] This study findings highlighted how a combination of theories and frameworks from scaling-up, implementation, evaluation, and social and political science, were used to provide evidence for local contextualisation.

Implementation is the process of integrating an EBI within a setting,[42] while scale-up refers to the process of making the intervention reach 'more people' and in a sustainable manner.[15 16] While implementation and scale-up are similar in their aim to improve current practice and make sustainable changes, they differ in the scale and complexity involved in the change process.[43 44] To address scale, implementation researchers must not only consider reaching more people but comprehensively address system level and contextual challenges which affect implementation and sustainability.

A major challenge to sustainability is the availability of research capacity in the implementing country, and building such capacity was central to this call. Local capacity helps ensure that research on programme maintenance is ongoing, extends knowledge of implementation research to other services/disciplines, and improves global equity in NCD-implementation research.[44–49] Our study demonstrates that systematic planning and clear governance mechanisms promote reciprocal and collaborative learning. It is through the establishment of such processes that implementation research capacity can be built globally.

Our findings point to three issues concerning scale-up research for local contextualisation, implementation research capacity building, and equity that merit reflection, as outlined below.

Tight funding timelines for consultation and local contextualisation

A funding cycle of 3–5 years is a tight frame for collaborative research that includes genuine stakeholder consultation and codesign for scale-up studies. Current funding timeframes may need to be evaluated to reflect the complexities in undertaking such collaborative research. An alternative is to provide smaller funds to help codesign and test the feasibility of interventions or to develop research programmes with calls for different phases of implementation.

Programmes that promote collaborative efforts between researchers, practitioners, implementors and policy-makers can greatly assist regional, country and international NCD-related commitments and are critical in global health agendas.[50–57] Such comprehensive consultation enables researchers to iteratively implement, monitor and evaluate the interventions to improve fit with local stakeholders' needs.[58–60] It is this need for research to be responsive to the contextual determinants of health that was referred to by the funders as being an essential component for this call. However, meaningful collaborative research including stakeholder engagement and consultation that genuinely addresses their needs through codesign and cocreation is a complex and time-consuming process.[61–63]

Beran *et al* discuss the challenges involved while conducting research for coproduction which include the need for multidisciplinary approaches, involvement of multiple stakeholders from the early stages and finding suitable research partners.[61] Time and investments are essential to conducting collaborative research as are trusting relationships and established linkages. This engagement process often commences once funding is obtained, leaving little time to develop strong partnerships and trust to address the study's aims. Funders may need to reconsider these time frames based on the complexities involved in conducting implementation research for true local adaptation.[64 65]

Accelerate global scale-up research capacity, equitably

It is crucial to have more funding opportunities that help build implementation research and scale-up research capacity at a global level. While the importance of developing and implementing locally adapted NCD interventions is essential, the funding of implementation research studies to support this process is underprioritised.[10 66] Such funding calls helped bring a spotlight on the need to fund research as a means to improving health outcomes.

Implementation research equips policy-makers with the necessary local evidence that supports national and subnational policy implementation.[10 67] The current scale of investments to develop implementation research is nowhere near what is necessary to support the actual

processes globally.[53 62] There is limited documented evidence of NCD scale-up experiences and the research processes required to support such work, research that is critical for supporting scale-up programmes. This scale-up call represented an investment of US$50 million. With recent estimates that most countries can meet NCD targets with a combined annual investment of US$18 billion annually from 2023 to 2030, this scale-up call comprises 0.28% of the required amount for 1 year.[9] If implementation research can accelerate the scale-up of interventions at this stage more funding opportunities to grow scale-up research knowledge, such as that outlined in the GACD scale-up call are urgently required.[53 68–70]

Equity is an important consideration at all stages of undertaking scale-up research. Addressing equity within the research collaboration will ensure improved global implementation capacity, while developing more equitable funding criteria can empower in-country implementation researchers to support and grow research at a local level. Lead researchers in collaborative studies shoulder the responsibility of ensuring that equity is carefully considered during all stages of the investigation, from early planning to end stages such as publishing.[71] Our study provided evidence that while most of the research documents included investigators from both HICs and LMICs listed as Co-PIs, only one-quarter of the funders who funded projects outside of their country were willing to consider a direct application from researchers in LMICs. Actual capacity building and empowerment begin when LMIC researchers can apply for grants directly as a lead researcher.[69 72] This is an important consideration for future funding calls.

Improving cohesive action

Better networking between researchers, implementers and funders can facilitate and foster greater sharing of lessons learnt, improving understanding of scale-up research. One of the lessons that can be learnt from the success of large-scale HIV programmes in low-resource settings is the importance of developing a cohesive voice to influence policy priorities and improve international funding.[73 74]

Funders recognised the important role that joint calls have in aligning global funding priorities, and that the GACD secretariat have in providing extensive networking opportunities to build collaboration between funders, researchers and practitioners. The formal and informal scientific meetings and networking events promoted by the secretariat provide structures and processes crucial to cement relationships. These events encourage conversations, build global partnerships, promote sharing of research learnings and ultimately break down ‘siloed’ thinking. This exchange of ideas and collaborative thinking enables alignment of strategy development, builds advocacy and is essential to spotlight the need for more funding to improve NCD prevention and control.[75 76]

Strengths and limitations

This study involved the activities of the GACD upscaling working group, providing us the opportunity to examine 21 ongoing projects operating in different contexts. The breadth and applied nature of this work offers a unique grounding for analysis. Nevertheless, our study also has limitations. First, this paper has been written from the point of view of the researchers. Second, the findings rely on the documents shared with us by the study teams, which were diverse but uneven in their comprehensiveness across the studied projects. Third, as we captured these data during the planning phase, there may be some variation between the planning and implementation of the intervention that we have been unable to cover. This study was conducted in the postfunding and early implementation phase of these funded studies and coincides with the rise of COVID-19 pandemic. The study teams likely faced several COVID-19-related challenges in implementing the protocols which are not captured in this study. Further, we interviewed five of the eight funders, so we may have missed some relevant material from the remaining funders. Nevertheless, thanks to the broad reach of the projects studied, we believe the reported findings accurately capture the understanding of the participating NCD-related scale-up projects.

CONCLUSION

Scale-up research requires a team of multidisciplinary, experienced academics and researchers to lead research components such as stakeholder engagement, implementation and evaluation studies to improve the local adaptation of EBIs. Investment in building multidisciplinary research capacity and leadership is fundamental to scale-up research. Joint calls such, as from the GACD, encourage international collaborative research teams to undertake diverse studies and improve knowledge generation in implementation research.

Genuine stakeholder engagement and consultation for codesign requires time and resources. It is critical to have funding opportunities that better reflect the complexity of research that is involved in and the resources necessary to undertake stakeholder consultation leading to local contextualisation.

Collaborative platforms, such as the GACD, that prioritise equity can promote the degree and quality of learning, networking and collaboration among researchers, implementing partners and donor agencies. This is required for understanding the situated advent and global proliferation of NCDs as well as the emergence of more meaningful, lasting interventions that can help address its rising burden.

Reflexivity statement

The GACD research network includes researchers, academics and implementors from over 73 countries globally. This study has been conducted as a part of the research activities of the GACD Upscaling Working

Group and forms a part of the published protocol which was codesigned and coauthored by members of this group.[13] The working group membership is open to all project members from any project funded under the GACD umbrella who are interested in developing the science of scale-up. Every participating study that was examined as a part of this research, represents a research consortium with research partners spread across HICs and LMICs. Project lead investigators from both the LMIC and HIC were invited to participate in this study. Participation was voluntary and we sought consent from the lead investigators from these consortia. The authors for this paper include writing group members from both HICs and LMICs.

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