The Importance of and Challenges to Carrying Out Embedded Implementation Research in Humanitarian Settings: A Study of the Rohingya Refugees

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Abstract

In humanitarian contexts, it is a difficult and multi-faceted task to enlist academics, developmental actors like humanitarian actors, practitioners and health authorities in a collaborative research effort. The lack of embedded implementation research (EIR) in such settings has been widely described, but few have analysed the challenges in building strong and balanced research partnerships. Recent calls identify the need for embedding locally relevant and demand-driven research in health systems to improve implementation and scale-up. EIR is an approach to support health systems strengthening in which research is made integral to decision-making for programme improvement. The systematic identification of implementation bottlenecks and embedding research into programmes can address concerns of implementers and support action to improve implementation at scale.Research from the academic community is an important and influential area that can identify ways to address challenges in dynamic humanitarian settings and EIR can be utilised as a practical means to contribute to agenda-setting.This study therefore aims to highlight and analyse the challenges to conducting EIR in humanitarian contexts by looking specifically at the experiences of the Rohingya refugees in Cox's Bazar, Bangladesh and it will conclude with recommendations for overcoming the challenges to EIR.

Keywords: Cox's Bazar; embedded research; embedded implementation research; humanitarian settings; implementation research.

Introduction

Humanitarian needs are extensive and widespread. The current global humanitarian system has been facing daunting challenges exacerbating vulnerability and increasing humanitarian needs (Gingerich & Cohen, 2015). The existing system can no longer adequately address the current needs of vulnerable communities in natural disaster, crises and conflict settings (RSIS, 2015). For example; conflicts and natural disasters are becoming more intense and destructive, overwhelming humanitarian relief efforts. Within the Asia-Pacific region, there are serious concerns over the ongoing conflicts in Afghanistan, the Philippines, Thailand and West Papua in Indonesia, amongst others (Gursky, Burkle, Hamon, Walker, & Benjamin, 2014). There are also concerns over unresolved disputes in the Korean peninsula, the possibility of renewed violence in Sri Lanka, and the aftermath of decades-long Indochina wars in Cambodia, Laos, and Vietnam (Hirschman & Bonaparte, 2012). The region has been witnessing heightened inequality, human insecurity issues, and complex humanitarian crises (Masson, Lim,

Budimir, & Podboj, 2016). In terms of responding to disasters alone, even developed countries like Japan which have some of the region's best disaster preparedness systems in place have had difficulty in addressing the aftermath of large-scale disasters such as the Fukushima nuclear accident (Hobson, 2012; Castor, 2014). It becomes even more of a concern when one looks at countries already vulnerable to humanitarian crises, but which have far fewer capabilities (RSIS, 2015).

More recently and relevant to this paper, 2017 saw a mass exodus of the stateless Rohingyas of Myanmar to Bangladesh which resulted from a culmination of decades of restrictive policies that saw the Rohingyas stripped of their rights, denied an identity and forcibly driven from their homes (Lee R. , 2019). The influx of over one million Rohingya refugees from Myanmar into the Cox's Bazar district of Bangladesh has led to a localised, large-scale and protracted humanitarian crisis (Rieger, 2021). The health status of Rohingya refugees or Forcibly Displaced Myanmar Nationals (FDMNs), especially women and children, is a significant challenge for humanitarian workers in Bangladesh (Sarker, et al., 2020).

There is growing importance placed on improving the delivery of evidence-informed interventions to achieve population health outcomes (Varallyay, Bennett, Kennedy, Ghaffar, & Peters, 2020). Implementation research (IR) is being recognised (Theobald, et al., 2018) as a potentially impactful way to generate locally relevant evidence to inform feasible, effective implementation strategies. IR seeks to strengthen the delivery of programmes, policies and practices in routine settings, addressing issues around effectiveness, efficiency, quality, equity and sustainability of implementation, to ultimately improve population health (Panisset, Koehlmoos, Alkhatib, Pantoja, & Singh, 2012). The outcome of a successful IR project is integration of findings into practice or policy.

There however remains a crucial need to understand specific vulnerabilities and challenges in humanitarian and crisis settings to develop responsive strategies that can better assist vulnerable communities (RSIS, 2015). Humanitarian and developmental actors find themselves embedded within differing political, social and economic contexts. However, they often lack knowledge of challenges inherent to these contexts and that are pre-existent to a crisis.

One approach to IR, and in order to best respond to the needs of people affected by humanitarian crises, is the recognition of embedded implementation research (EIR). EIR is increasingly recognised as a valuable endeavour which allows for contextually relevant knowledge generation (Smith & Blanchet, 2019; Ghaffar, et al., 2017; Langlois, Nhan, Ghaffar, Reveiz, & Becerra-Posada, 2017). It is an approach to strengthening systems in which the generation and use of research is led by decision-makers and implementers. EIR is conducted within a specific local context, where priorities and system complexities are considered and where research is an integrated and systematic part of decision-making and implementation.

The importance of EIR lies in its ability to optimise practice through research (Kottke, et al., 2008) and rests on the public health value of applying what we already know to achieve long-term health benefits that are within reach (Padian, Holmes, McCoy, Lyerla, & Goosby, 2011). By using contextual knowledge to study processes to improve practice, EIR aims to apply research findings and methods to real-world contexts

and settings. The idea is that by addressing research questions of direct relevance to programmes, EIR will increase the prospect of evidence-informed policies and programmes with the ultimate goal of improving health and nutrition.

However, despite the increasingly widespread appreciation of the value of EIR in humanitarian settings, the inherent dynamism and unpredictability of certain humanitarian crisis contexts, combined with a myriad of implementation challenges have made it difficult to bridge knowledge gaps across the humanitarian sector. Although EIR has been conducted in multiple settings (Rasanathan, Tran, Johnson, Peterson, & Ghaffar, 2020; Tran, et al., 2017; Koon, Rao, Tran, & Ghaffar, 2013) there are limited experiences of EIR in humanitarian settings. This study highlights some of the key challenges of conducting EIR in a humanitarian setting focusing specifically on the Rohingya refugee population in Cox's Bazar, Bangladesh. The Rohingya refugee crisis is considered among the largest, fastest movements of people in recent history. It is this scale that makes the Rohingya refugee crisis different to other crises. The enormous scale of the influx is putting immense pressure on the Bangladeshi host community and existing facilities and services (Bhatia, et al., 2018; Shahabuddin, et al., 2020). This study will use findings from previous research in practical applications, examining challenges to implementation strategies to scale up the programme and treatment coverage.

Problem Statement

In humanitarian contexts, it is a difficult and multi-faceted task to enlist academics, developmental actors like humanitarian actors, practitioners and health authorities in a collaborative research effort. The lack of EIR in such settings has been widely described in the past decade, but few have analysed the challenges in building strong and balanced research partnerships (Leresche, et al., 2020).

Rationale for the Study

Recent calls identify the need for "embedding locally relevant and demand-driven research" in health systems to improve implementation and scale-up (Theobald, et al., 2018). EIR is an approach to support health systems strengthening in which research is made integral to decision-making for programme improvement. The systematic identification of implementation bottlenecks and embedding research into programmes can address concerns of implementers and support action to improve implementation at scale.

Detailing the challenges of conducting embedded research in humanitarian contexts is important. Research from the academic community is an important and influential area that can identify ways to address challenges in dynamic humanitarian settings and embedded research can be utilised as a practical means to contribute to agenda-setting. EIR is important to ensure that projects make available to the humanitarian actors and practitioners the tools that they need to better empower vulnerable populations.

Knowledge Gap

Conducting EIR research in the context of a humanitarian response is a difficult, challenging but still much needed enterprise (Waldman & Toole, 2017; Sibai, et al.,

2019; Blanchet, et al., 2018). Despite a growing body of evidence on the value of research in emergency settings, there is still a knowledge gap regarding the challenges of conducting EIR in these settings (Leresche, et al., 2020).

Aims, Methodology and Approach

This study aims to highlight and analyse the challenges relating to conducting EIR in humanitarian contexts by looking specifically at the experiences of the Rohingya refugees in Cox's Bazar, Bangladesh. This analysis derives from a desktop review of the current literature by searching multiple databases to identify relevant academic publications, books, journal articles, programme evaluations, survey data, and other influential sources, including data from peer-reviewed journals and grey literature. Many documents included in this review consist of grey literature publications such as reports by United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA), United Nations High Commissioner for Refugees (UNHCR), Office of the United Nations High Commissioner for Human Rights (OHCHR), United Nations (UN), Human Rights Watch (HRW), ReliefWeb, International Organization for Migration (IOM) and World Vision. In order to meet the objectives of this study; this article draws from existing frameworks of IR. The findings thereof together with the main results of the reviews are included in this article to strengthen the understanding of the challenges related to EIR and the recommendations reached.

Limitations

There are two specific limitations to this study. Firstly, in the bibliographical research, a limited amount of work related to EIR in humanitarian settings was found on the recent literature (Shahabuddin, et al., 2020; Jackson, et al., 2020). This article is therefore meant to reinforce the small amount of studies published, showing that the field is still incipient with opportunities for research.

Secondly; the challenges discussed in this paper are limited to IER in the Cox's Bazar Rohingya emergency setting. Although this study highlights several key challenges for conducting EIR in humanitarian settings like Cox's Bazar, the findings may not be applicable to other humanitarian settings because of the uniqueness of every emergency. However, the idea is that by highlighting issues relating to EIR in the Rohingya context, it is hoped that the highlighted challenges and recommendations may have implications for other humanitarian settings; as the challenges will be useful to enhance the collective understanding of what is appropriate and helpful to programme implementers.

The Rohingyas – A Background in Brief

The Rohingyas, a stateless Muslim ethnic minority, who live in northern Rakhine State, western Myanmar, have for decades suffered from several forms of discriminatory practices, restrictions and human rights violations (Amnesty International, 2004). The Rohingyas are subject to various forms of forced labour, arbitrary taxation; land confiscation; forced eviction and house destruction; financial restrictions on marriage; restrictions on freedom of movement[1] and the vast majority of them have effectively

[1] An example includes Rohingyas in northern Rakhine State who must routinely apply for permission

been denied Myanmar citizenship (Goodman & Mahmood, 2019). This exclusion of citizenship started in the 1960s (Haacke, 2016), continued through to the 1970s and 1990s (Alam J. , 2019) and has been identified as the main reason behind the violence against this community over the years (Mitun, 2018; Holiday, 2014).

In 1978 over 200,000 Rohingyas fled to Bangladesh, following the '*Nagamin'* ('Dragon King') operation of the Myanmar army (Sohel, 2017). Officially this campaign aimed at "*scrutinising each individual living in the state, designating citizens and foreigners in accordance with the law and taking actions against foreigners who have filtered into the country illegally*" (Human Rights Watch/Asia, 1996). This military campaign directly targeted civilians and resulted in further religious persecution, widespread killings, rape and destruction of mosques (Amnesty International, 1992). After international pressure the Myanmar government allowed most of the Rohingyas who had fled to Bangladesh to return. However, after return and between 1991-92 reports of widespread forced labour, summary executions, torture and rape saw a new wave of over a quarter of a million Rohingyas flee to Bangladesh (Alam M. , 2018).

Following an understanding reached with the Myanmar government, from the end of 1992 until early 1994 the Bangladeshi authorities together with approximately 50,000 Rohingyas were forcibly repatriated across the border (Medecins Sans Frontieres, 1994). After a formal Memorandum of Understanding was signed between UNHCR and the Myanmar government in November 1993, UNHCR initiated a voluntary mass repatriation and reintegration programme for the Rohingyas in April 1994 (Amnesty International, 2004). The UNCHR presence was meant to provide protection for the returnees.

Nevertheless, in August 2017 the Myanmar government launched a military "clearance operation" (Nanji, 2017) that forced a mass exodus of hundreds of thousands of Rohingyas to Bangladesh (Alam J. , 2021). A recent report has indicated that around mid-August 2018, nearly 700,000 Rohingyas fled to Bangladesh to escape detainment, torture, enforced disappearance, rape, and other severe human rights abuses. Classifying these acts as "a textbook example of ethnic cleansing" (Nanji, 2017); the immediate cause of their flight was described by the UN as a "widespread and systematic attack on civilians" with "elements of extermination and deportation" as well as "systematic oppression and discrimination that may also amount to the crime of apartheid" (European Commission, 2018).

Over this period of forced migration, the Rohingyas or FDMNs fled to Bangladesh, Indonesia, Malaysia and Thailand. Bangladesh was chosen as the host country because the majority of the displaced Rohingyas had already found their way to Bangladesh during 1978, 1996 and 2017. It is estimated that more than one million FDMNs now live in Bangladesh (Alam J. , 2021), making Bangladesh the largest Rohingya refugee-hosting country in the world (Arif, 2020). Rohingya refugees remain among the most vulnerable people as they have been living with ongoing uncertainty, storms and the threat of disease outbreaks since fleeing their homes in 2017 (World Vision, 2021).

to leave their village, even if it is just to go to another nearby village. This practice does not apply to the Rakhine population in the Rakhine State.

Current Living Conditions of the Rohingya Refugees in Bangladesh

Approximately 1.1 million FDMNs are currently living in the Cox's Bazar district of Bangladesh (Parmar, Jin, Walsh, & Scott, 2019). As of January 2019, over 900,000 FDMNs resided in Ukhiya Upazila and Teknaf Upazila (sub-districts of Cox's Bazar), whilst the largest single site, the Kutupalong–Balukhali expansion site, hosted more than 600,000 Rohingyas (Bhatia, et al., 2018; Shahabuddin, et al., 2020). The Kutupalong refugee settlement has grown to become the largest of its kind in the world, with more than 600,000 people living in an area of just 13 square kilometres, stretching infrastructure and services to their limits. Approximately eight-four percent of this Rohingya diaspora have settled in the collective sites which are camp-like settings where only Rohingya refugees live; approximately twelve percent live in the collective camplike settlement sites that developed around existing Bangladeshi communities and approximately four percent live in dispersed sites which are locations where Rohingya refugees reside among Bangladeshi host communities (Ahmed, et al., 2020).

Due to the increasing number of Rohingya refugees and their congested living conditions in the camps there has been an overwhelming increase in their health risks (Islam & Nuzhath, 2018) and it has become a constant challenge to address their health needs. The concentration of people in these camps is amongst the densest in the world and the conditions remain poor. The FDMNs suffer from a lack of proper shelters, toilet facilities, clean water, hunger, nutrition, safety and various medical issues. Since the start of the influx the government of Bangladesh together with more than one hundred national non-governmental organisations (NGOs), international NGOs, UN organisations and several donor agencies have been providing both preventative and clinical care, including health promotion, for the FDMNs (Sarker, et al., 2020).

Despite substantial progress during the past few years (UNHCR, 2019) Rohingya refugees in Bangladesh remain in a precarious situation. Recent studies found that the key health risks of Rohingya refugees are largely associated with their poor living conditions; the lack of safe water, nutrition, food, sanitation and hygiene, lack of support for education, poor healthcare, lack of livelihoods, household items, information and access to health services (Chan, Chiu, & Chan, 2017; Banerjee, 2019). Reports have also identified that FDMNs required differing health-related services (ISCG, 2019; ISCG, 2020). These reports identified that in the FDMN camps 52 percent are female, of which 23 percent are between the ages of 18 and 59 years (UNHCR, 2019) making them even more vulnerable in the humanitarian context (Nordby, 2018). Other studies indicate that almost 55 percent of the Rohingya refugees are women and children, many of whom have faced gender-based violence, abuse, trafficking, malnutrition and serious health problems (Shahabuddin, et al., 2020; Ahmed, et al., 2019). The scale of the crisis makes managing their reproductive health and quality of life a consistent challenge (Ainul, et al., 2018). There remains an inadequate supply of essential reproductive services along with maternal, child and new-born health services (Islam & Nuzhath, 2018). The risk of morbidity and mortality related to pregnancy, childbirth, sexual exploitation, violence and diseases is higher for them

in such complex emergencies.
In addition; on March 22, 2021, the plight of the FDMNs intensified after a massive fire swept through Cox's Bazar, destroying more than 10,000 shelters, food distribution sites and clean water and sanitation facilities (Singh, 2021), placing them in an even more precarious situation.
It therefore becomes imperative to address issues affecting the FDMNs in order to improve their health and living conditions.

Importance of Embedded Implementation Research

One way that has been identified to improve the living conditions of the FDMNs is through EIR. While IR has multiple definitions; there is broad consensus that it is an applied approach to scientific inquiry concerned primarily with the 'how' and 'why' of implementation (Peters, Adam, Alonge, Agyepong, & Tran, 2013). However, the notion of 'embedding' has taken on different meanings (Olivier, Whyle, & Gilson, 2017); embedding individual researchers within health service delivery settings (Vindrola-Padros, Pape, Utley, & Fulop, 2017; Wolfenden, et al., 2017; Cheetham, et al., 2018); embedding research at the organisational level (Koon et al., 2013) (Koon, Rao, Tran, & Ghaffar, 2013) and embedding (institutionalising) research into programme/ policy processes and/or budgets (Olivier, Whyle, & Gilson, 2017).
Peters, Tran and Adams (David, Peters, Tran, & Adam, 2013) note that "the basic intent of implementation research is to understand not only what is and isn't working, but how and why implementation is going right or wrong, and testing approaches to improve it." This form of research addresses implementation bottlenecks, identifies optimal approaches for a particular setting, and promotes the uptake of research findings. Ghaffar (Ghaffar, et al., 2017) writes that IR should be 'embedded' in programming, in partnership with policymakers and implementers, and integrated in different settings to take into account context-specific factors to ensure relevance in policy priority-setting and decision-making (Langlois, Mancuso, Elias, & Reveiz, 2019). UNICEF further defines EIR as "the integration of research within existing program implementation and policymaking to improve outcomes and overcome implementation bottlenecks" (Jackson, et al., 2020).
These definitions indicate that EIR becomes important to understand factors that influence and improve implementation whilst at the same time learning to adopt IR into programmes whilst finding ways to take programmes to scale. Primarily this research approach is led and informed by implementers with meaningful engagement and the support of researchers. The key characteristics of the approach include analysis that has real world, real time applicability and responsiveness; continuous engagement across and between the implementers and the researchers; the alignment and embedding of research activities within implementation, funding and policy cycles; and planning and evaluation (Ghaffar, et al., 2017; David, Peters, Tran, & Adam, 2013; Jackson, et al., 2020).
EIR is an innovative approach for health systems strengthening in which research is made integral to decision-making. It includes positioning research within existing programmes and systems, building a new evidence ecosystem, and drawing siloed

sectors together. In addition, it involves meaningful engagement and leadership roles for decision-makers and implementers within the research team, and when possible, it assists to align research activities with programme implementation cycles. Embedding increases the likelihood of evidence-informed policies and programmes. Embedding IR into the policymaking and systems strengthening process amplifies ownership of evidence, recognises decisions are not made on evidence alone and also takes societal context and values into account.

Challenges and Recommendations

Due to the unique characteristics of the FDMN population and the location of the refugee camps the literature indicates that EIR in such settings face specific challenges. This paper does not purport to identify ALL of the challenges but only some of those challenges as identified in the relevant literature on EIR, meaning that much more research is required to identify all of the challenges in these settings to effectively respond to the needs of the vulnerable in humanitarian settings, like Cox's Bazar.

Challenge 1: The Geographic Location of Cox's Bazar

One of the major challenges relates to an understanding of access constraints. Understanding access problems is essential for designing interventions to improve service delivery to the most vulnerable in times of crisis or disasters. Following the large influx, the refugees have been confined to overcrowded camps with 40,000 people per square kilometre in the Cox's Bazar district, where they live in temporary shelters. Due to population density in the refugee camps and flammable materials used to build the shelters, Coz's Bazar remains prone to fire outbreaks which can spread very quickly, causing massive damage to already fragile infrastructure (IOM, 2021).

Additionally; during seasonal monsoon rains they are highly vulnerable to floods and landslides (Rieger, 2021). Cox's Bazar is currently located in the Chittagong Hill Districts (CHD) of Bangladesh. The CHD is an area that recurrently sees natural disasters like landslides, generally between June to September which is the monsoon season (Zaman, Sammonds, Ahmed, & Rahman, 2020). Being a hilly and coastal area, the site is, in addition to landslides, highly vulnerable to floods and cyclones a situation made worse during the rainy season (United Nations Office for the Coordination of Humanitarian Affairs, 2018; Islam & Nuzhath, 2018). It has been reported that during the months of June, July and September in 2019 at least 226, 731 and 243 landslide incidents were reported in the camps in Cox's Bazar (IOM, 2019).

Acknowledging that these vulnerabilities, specifically landslide vulnerability is a complex issue and varies between physical, social, economic, environmental, institutional and cultural dimensions (Ahmed B. , 2021), Bangladesh has seen the over-exploitation of natural resources, including gradual deforestation and loss of mangrove forests that help protect coastal areas from cyclones (Ministry of Environment and Forest Dept., 2017). Specially in Cox's Bazar; and due to hill cutting and deforestation to accommodate the FDMNs soil erosion is a growing problem,

and the risk of deadly landslides triggered by heavy rains is a significant barrier to access health care services (Sarker, et al., 2020).

Fire outbreaks and landslide disasters have caused considerable loss to human lives and damage to critical infrastructure, ecosystems, livelihoods and local economy throughout the CHD of Bangladesh, disproportionately impacting the Rohingya refugees (Rabby & Li, 2019). These disasters have been categorised as an emerging threat at the national level driven by, but not limited to, the need to accommodate the FDMNs and the impacts of increased frequency of population pressure.

Research carried out to better understand the inter-linkages between the internal and external factors related to landslide disasters showed that the Rohingyas are not allowed to move outside the camps or to build permanent shelters that may be more physically resilient to natural hazards like landslides, flooding and cyclones (Alam E. , 2020; ISCG, 2020). Despite efforts from humanitarian partners to provide training on disasters and trying to strengthen the shelters and producing multi-hazard maps for better site management (Ahmed B. , 2021), the Kutupalong Rohingya site remains the world's largest, most densely populated and the most natural hazard-prone refugee camp.

During times of disasters, natural or otherwise; access to the community and different health facilities, and finding relevant respondents, remains a major challenge, particularly during the rainy season. During the rainy season the heavy rainfall and poor conditions of roads or pathways make it impossible for vehicles to get into the camps (Islam & Nuzhath, 2018), making the provision of services a huge challenge.

***Recommendation*:** It is acknowledged that whilst it is not possible to modify the core hazard characteristics or eradicate landslide and other natural disaster threats entirely from the region; the population density and overcrowding can be reduced in order to mitigate some hazards like fire outbreaks. It is also known, to a certain extent, what makes the Rohingyas susceptible to the natural disasters like landslides and it is generally known that landslides occur mainly during the monsoon and cyclone seasons.

In order to mitigate the risk on these already vulnerable group it is recommended that efforts should be aimed at improving programme implementation through embedded research. This model will place implementers, such as policy-makers, district health officers, programme managers, and front-line health workers at the centre of the research process (Islam & Nuzhath, 2018). Implementers should play a leadership role in the research endeavour and must work with academic partners to apply systematic methods of inquiry to understand barriers in health systems that obstruct implementation as well as to identify solutions to these barriers. In this way, implementation research can be used as a tool to improve policy and programmatic decision-making processes related to the scale up of effective health interventions. This model does not imply that implementers become the researchers, rather the model works to ensure that implementation research activities reflect the needs and priorities of decision-makers while strengthening the capacity of the system to respond to implementation challenges

Challenge 2: Culture, Language and Limited Local Research Partnerships

Research methods are closely linked to specific cultures. For any research to be successful. gaining the community's trust is very important (Celestina, 2018). The

limited availability of local research collaborators is a huge challenge. Local research collaborators are important in IER because recognition of cultural values in the knowledge generation process is important if researchers are to produce culturally diverse interpretations of reality that facilitate meaningful progression (Wagner, Hansen, & Kronberger, 2014). The Rohingya Muslims cultural beliefs and previous experiences with the health system could pose a serious challenge to successful implementation if the programme is not aimed at local/cultural sensitivity and acceptability (Varallyay, Bennett, Kennedy, Ghaffar, & Peters, 2020).

For example; in a recent study, socio-cultural beliefs and practices, along with protection concerns have impacted participation of girls in education (ISCG, 2019; ISCG, 2020). In the study approximately 40 percent of parents of adolescent girls and 33 percent of parents of adolescent boys reported that education is not appropriate for their children, indicating a gap in sensitisation on education and the rights of children. In addition, perceived safety threats in learning facilities is also a major concern, particularly for young learners aged 6-14 years (32 percent for girls and 25 percent for boys) more so than for ages 15-18 years (32 percent for girls and 18 percent for boys) (ISCG, 2020). Language is also seen as a challenge to researchers working with linguistically and culturally diverse communities (Squires, 2009; Shahabuddin, et al., 2020).

***Recommendation*:** The challenges of conducing IR in humanitarian settings can be reduced with the involvement of researchers or research institutions with adequate research capacity and understanding of the context and research approach. The importance of collaborating with researchers or research institutes that are familiar with and have experience in conducting research in such settings; who are familiar with the camp context and have knowledge of not only the relevant cultural context, but knowledge of the language too is an important barrier to cross in effective EIR. Without adequate working experience, cultural and relevant language experiences or knowledge in the humanitarian context, (i) researchers may experience several challenges while collecting data, (ii) they may find it difficult in identifying key stakeholders, (iii) or in bringing developmental actors on board to ensure the execution of the project and (iv) they could face challenges in ensuring utilisation of the research findings by key stakeholders.

Challenge 3: Absence of a Long-Term Plan

In addition to the geographic location and the high number and density of the population, the absence of a long-term plan for the FDMN population makes the situation in Cox's Bazar unique and complex. Whilst the government's national development plans emphasise the importance of disaster management, they make little reference to the Rohingya refugee crisis (UNHCR, 2020). In the context of the Rohingya refugee crisis with specific emphasis on their health needs, it is challenging for humanitarian and development actors to comprehensively address long-term needs for refugee and host communities in the absence of a multi-year strategy.

While EIR often aims to find sustainable solutions to implementation challenges; particularly solutions that can strengthen the existing health system; the difficulty of achieving this in the Rohingya context can be linked to the Bangladeshi government's

non-commitment to ensuring long-term services for the FDMNs. Whilst the government maintains a strong stance on the repatriation of the refugees, which impedes long-term planning of the refugee response, the possibility of repatriation remains uncertain following the military coup in Myanmar in early 2021[2] (Cuddy, 2021). As the crisis grows more protracted, the refugees continue to rely on significant volumes of humanitarian assistance with longer-term needs being unmet.

For example, the leadership of the Ministry of Disaster Management and Relief on Disaster Preparedness, Response and Recovery (Ministry of Disaster Management and Relief, 2020) is supported by development donors, NGOs and UN agencies alike and local and national NGOs have longstanding experience in building community resilience and reducing disaster risk in Bangladesh (Rieger, 2021). However, whilst the UN has made progress in Bangladesh in formalising international collaboration across the nexus on disaster management, this process is mostly led by humanitarian actors (Hossain, 2020). What this translates to for the FDMNs is that since the engagement of international actors with local and national NGOs in the district is mostly framed in humanitarian terms, very little funding is available for development needs (Rieger, 2021).

Even though the government still broadly opposes longer term policy changes that are perceived to disincentivise repatriation multilateral development banks (MDBs) have broadened the response to address some development needs (Rieger, 2021). The majority of official development assistance (ODA) received in recent years was in the form of concessional loans (World Bank, 2020). The response strategy for Covid-19 is nationally led by the Ministry of Health and Family Welfare (Ministry and Welfare, 2020). In Cox's Bazar district, the humanitarian community, coordinated by the Inter Sector Coordination Group (ISCG), has supported the Government's Covid-19 prevention and response efforts; however, meeting the different needs of the host and refugee communities remain a challenge. The shorter-term humanitarian relief is insufficient to sustainably address the structural development needs of the host community and the FDMNs. There is an urgent need to simultaneously plan for and implement programmes across the development nexus.

***Recommendation*:** Now more than ever, it is critical to build the evidence base on the potential socioeconomic benefits to the district that a longer-term approach would bring to allow for an informed discussion with the government. The utilisation of EIR would provide the kind of scientific evidence base on which to respond to the long-term needs of the FDMNs. Bilateral donors, MDBs and UN agencies should continue to deepen their engagement with the local government in Cox's Bazar district for it to better cope with the localised refugee crisis but in addition and very importantly they should invest in and support EIR to design a targeted research programme for reducing uncertainties and that provide a coherent framework that guides local, national and international development efforts in the district. EIR should further

[2] A coup d'état in Myanmar began on the morning of 1 February 2021, when democratically elected members of the country's ruling party, the National League for Democracy (NLD), were deposed by the Tatmadaw—Myanmar's military—which then vested power in a stratocracy. The coup returned the country to full military rule after a short span of quasi-democracy that began in 2011, when the military, which had been in power since 1962, implemented parliamentary elections and other reforms. The Tatmadaw has currently proclaimed a year-long state of emergency.

focus on how development actors can increase their engagement with local civil society in crisis-affected regions like Coz's Bazar (Rieger, 2021).

Challenge 4: Implementation Focus

A research focus on implementation issues lies at the foundation of EIR and is pivotal for identifying programme improvements that can lead to strengthened system performance and better health outcomes (Ghaffar, et al., 2017). Implementation focus results in substantively different research questions as compared with other approaches to programme improvement (Rao, et al., 2016). Research questions address issues related to the delivery of programmes and policies and are responsive to the information needs of programme/policy decision-makers. The process of reframing research questions to ensure clear articulation of implementation issues is another challenge in conducting EIR in humanitarian settings. This process of reframing research questions would entail that decision-makers have the ability to critically evaluate and look "internally" or focus on the local context of the service or the policy implementation in order to be able to acknowledge implementation weaknesses (Theobald, et al., 2018). Being able to identify and acknowledge implementation issues requires insider knowledge of programme realities and the capacity to use available information in detecting service delivery problems amenable to research (Varallyay, Bennett, Kennedy, Ghaffar, & Peters, 2020). This demands proactive engagement and direction by decision-makers as knowledge users.

***Recommendation*:** Careful formulation of the research question(s) is needed to ensure results are relevant and actionable within the local reality for programme implementation and improvement (Rao, et al., 2016). Since challenges in achieving an implementation focus could prove problematic to teams new to IR where they may struggle to grasp this research orientation; training and development should be a prerequisite in order to achieve the intended outcomes of IR and by extension EIR.

Challenge 5: covid 19 and the Inability to Rapidly Adapt to Changing Situations

The cramped living conditions in the refugee camps is a breeding ground for the spread of diseases and viruses like the current COVID-19 virus (Guglielmi, Seager, Mitu, Baird, & Jones, 2020). The COVID-19 pandemic has intensified existing hardships and health risks (Islam & Yunus, Rohingya refugees at high risk of COVID-19 in Bangladesh, 2020). Unsafe conditions like these make it difficult to conduct effective EIR to improve the living conditions of the refugees.

However, since before this pandemic and given the severity of the refugee crisis, different organisations struggled to adapt to meet the rapidly rising demand for basic services and health needs. This demand has grown more acute over time (Shahabuddin, et al., 2020). Despite government and development actors having scaled up their activities in the district from 2018 onwards, which included large-scale mitigation measures from both the government and MDBs (Rieger, 2021); the effects of the Covid-19 pandemic has however reduced economic growth and increased poverty. The scope of the response itself has evolved from addressing the urgent needs of refugees, to considering the needs of host communities (Caitlyn & Bryant, 2018; WHO, 2017; ISCG, 2019). This response effort has added another dimension of

need to existing humanitarian crises from natural hazards and forced displacements, while at the same time hindering the provision of assistance to FDMNs.
The inability to adapt to the changing situation of the refugees in the camp is a serious challenge to EIR. Like in other emergency settings, the overall situation of Rohingya refugees has changed rapidly and continues to change rapidly, as have the barriers to implementing health services (BRAC, 2018).
***Recommendation*:** The EIR approach should be flexible enough to adapt to and address the ongoing implementation challenges of health programmes and policies; with research questions and methods that can be modified as needed. It is critical that approaches and methods used enable quick results, to help fill immediate knowledge gaps of health programmes as they arise. Given such an unstable situation, and to align EIR with existing health programmes, a relatively easy and flexible research method that could produce quick, real-time data is pivotal.

Challenge 6: Safety and Security Concerns

Various studies highlight that due to the uniqueness of emergency settings, where violence is often a problem; the safety and security of stakeholders is one of the biggest constraints for EIR (Dahab, 2017; Murph, Yoshikawa, & Wuermli, 2018; Lee, Sulaiman-Hill, & Thompson, 2014; Sarker, et al., 2020). In one study it was reported that without the protection of secure fences health care providers like doctors and nurses, felt particularly unsafe working at health posts and some reported that despite the presence of guards at the health facilities field staff were threatened by the very beneficiaries they were assisting (Sarker, et al., 2020).

***Recommendation*:** There must be coordination and cooperation between the government, the army, and the implementing organisations to address the security concern of all stakeholders involved in EIR.

Challenge 7: The Lack of Coordination

There is a number of coordination bodies in Bangladesh for humanitarian assistance and they vary by type of crisis and for development assistance by sector. Maternal, new-born, and child health services are the primary focus of the interventions (ReliefWeb, 2019). As mentioned previously the government together with more than one hundred NGOs, UN organisations and donor agencies have been providing both preventative and clinical care for the FDMNs since the start of the influx (Sarker, et al., 2020). Whilst, the government has a strong role in coordinating disaster management at the national and local level, there is not yet a designated forum to bring together development and humanitarian actors at the national level.
For example; at the district level in Cox's Bazar, the Refugee Relief and Repatriation Commissioner (RRRC), under the Ministry of Disaster Management and Relief, is responsible for management and oversight of the Rohingya refugee response (Ministry of Disaster Management and Relief, 2020). The Senior Coordinator of the ISCG Secretariat in Cox's Bazar district ensures the overall coordination of the Rohingya refugee response, including liaison with the RRRC, District Deputy Commissioner and government authorities (ISCG, 2019). For international actors,

separate coordination mechanisms exist for development and humanitarian activities related to natural hazards (Rieger, 2021). It is clear that each actor has a distinct function. Accordingly, whilst there are various different organisations with varying roles, the challenge is the lack of coordination between the different organisations.

***Recommendation*:** IER can assist to fill this coordination gap for wider development assistance in Cox's Bazar district. IER can help ascertain how international actors in Bangladesh can increase the coherence of existing coordination structures for humanitarian and development programmes and this will ensure development activities complement the crisis response by meeting the longer-term needs of host communities and refugees that cannot be addressed through existing programmes and policies. Tailoring interventions to context requires both contextual analyses of the country and a mapping of current service realities. IER can assist in contextual analysis and improved methods to better understand the fragility features of each service sector and sub-sector and to develop better indicators to assist in the implementation of programmes.

Challenge 8: Further Research

Apart from a few academic articles on EIR in humanitarian settings (Shahabuddin, et al., 2020; Sarker, et al., 2020) there remains a lot to understand on how to, for example, build formal ventures involving humanitarian actors, national stakeholders and academics in a region such as Cox's bazar. It is clear that in addition to the EIR challenges highlighted herein there are other factors that influence EIR, such the ability of EIR teams to identify and act on opportunities to apply their research in programme/policy decision-making. In addition various other areas require further research, including but not limited to negotiations around resource distribution relating to access to grants, academic expertise, understanding of the global political context, access to the field (Sibai, et al., 2019; Sukarieh & Tannock, 2019; Hedt-Gautier, et al., 2018); and challenges around cognitive and moral dynamics like the notions of trust, ethical issues and direct ties with communities (Pascucci, 2016; Bowsher, et al., 2019).

***Recommendation*:** To understand more fully the challenges in EIR in a humanitarian context additional research is needed on the strategies EIR teams use to leverage local conditions, resources and opportunities in their pursuit of evidence-informed programme improvement.

Conclusion

This paper has highlighted the unique situation of the Rohingya refugees or the FDMNs. In a humanitarian crisis setting such as they find themselves in identifying implementation problems that hinder access to interventions and delivery of services remains crucial to their health and development. There is a clear need to address the living conditions and consequent health implications of their camp settings. One approach to such method that has been identified is IR which is the scientific study of methods to promote the integration of research findings and evidence-based interventions into health care policy and practice. A significant and recommended

method to IR is embedded IR (EIR).

This paper has further highlighted not only the importance of EIR in humanitarian settings, but it has correspondingly discussed the various challenges to carrying out EIR in a humanitarian setting like Cox's Bazar. This study has identified eight key challenges and provides recommendations to effective EIR in these contexts. This is done in the understanding that since EIR is typically conducted in real-world service delivery contexts, with actual programme actors, like patients and health care providers; and whilst acknowledging the heterogeneity of humanitarian settings and context programmes/policies or interventions; research findings can be adapted to specific contexts and influence intervention effectiveness in real-time. Embedded research in the field of humanitarian assistance and relief can assist to generate insights, highlight existing challenges and/or indicate concrete recommendations to improve the situation on the ground. In addition, it is evident that embedded research is crucial to improve the health of the FDMNs; however researchers clearly face various challenges in conducting EIR in humanitarian settings like Cox's Bazar. If the challenges are understood and predicted, these challenges together with the recommendations provided in this paper will assist researchers in adopting appropriate strategies before commencing their study to ensure effective EIR within these unique settings.

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