



Implementing (and evaluating) peer support with people living with noncommunicable diseases in humanitarian settings

Benjamin Schmid^{a,b,*}, Carla Njeim^c, Lavanya Vijayasingham^{a,b}, Leah Anku Sanga^{a,b}, Rima Kighsro Naimi^d, Fouad M. Fouad^e, Chaza Akik^f, Carla Zmeter^g, Sigiriya Aebischer Perone^{h,i}, Lars Bruun Larsen^j, Jytte Roswall^j, Éimhín Ansbro^{a,b}, Pablo Perel^{a,b}

^a Department of Epidemiology and Population Health, London School of Hygiene & Tropical Medicine, London, United Kingdom

^b Centre for Global Chronic Conditions, London School of Hygiene & Tropical Medicine, London, United Kingdom

^c Lebanese Red Cross, Beirut, Lebanon

^d Danish Red Cross, Beirut, Lebanon

^e Syrian Public Health Network

^f Independent consultant

^g International Committee of the Red Cross, Beirut, Lebanon

^h International Committee of the Red Cross, Geneva, Switzerland

ⁱ Geneva University Hospitals, Geneva, Switzerland

^j Danish Red Cross, Copenhagen, Denmark

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ABSTRACT

In line with the peer reviewers comments, the authors have added highlights in stead of an abstract. It was felt that it was better able to capture the findings and is more in line with the paper's target audience.

1. Models of care for people living with non-communicable diseases in humanitarian settings

Amidst the growing burden of non-communicable diseases (NCDs) globally, there is an increased effort to include them in humanitarian responses. Over the past decade, the humanitarian community has gained increasing experience in how best to do so. Initially, their efforts focused on primary-level care and providing the required health system inputs, for example, by developing tools and clinical guidance, medication lists, and training staff. This has proven a useful approach in ensuring the availability of essential services. However, experience highlights that approaches need to be integrated, sustainable, ensure continuity of care, and involve health systems strengthening (Ansbro et al., 2022). Yet, experts acknowledge that less attention was given to the quality of care, community-based models, and people-centeredness (see box for definition) (Ansbro et al., 2022; Jaung et al., 2021). For example, existing guidelines (e.g., World Health Organization (WHO)

Package of Essential NCD Interventions, WHO HEARTS) often have a narrow focus on one-on-one consultations and the control of key clinical parameters. They typically do not include support for people in their daily lives with an NCD or their ability to self-care.

Definition of people-centred care: an approach to care that consciously adopts individuals', carers', families' and communities' perspectives as participants in, and beneficiaries of, trusted health systems that are organized around the comprehensive needs of people rather than individual diseases, and respects social preferences. People-centred care also requires that patients have the education and support they need to make decisions and participate in their own care [...]. People-centred care is broader than patient and person-centred care, encompassing not only clinical encounters, but also including attention to the health of people in their communities and their crucial role in shaping health policy and health services. [(World Health Organization, 2016), p.2]

People living with NCDs (PLWNCDs) spend the vast majority of their time outside the healthcare system and carry 99% of the burden of care (Funnell, 2010). Most care takes place in people's working, living, and

* Corresponding author.

E-mail address: benjamin.schmid@lshtm.ac.uk (B. Schmid).

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social spaces through self-care routines or family and community support. Through this experience, PLWNCDS - and their families and networks - can become experts in managing their condition. Conversely, without the necessary support, PLWNCDS' disease control may rapidly deteriorate, resulting in complications. These - in turn - often induce economic hardship and worsen people's social isolation (Bommer et al., 2017). This may be especially true in humanitarian settings where social, environmental, and commercial determinants of health are especially challenging (Schmid and Raju, 2021; CSDH, 2008).

PLWNCDS in humanitarian settings often adapt their care-seeking to obtain their required medicines and treatment from different sources. Despite this resourcefulness, it becomes increasingly challenging to maintain self-care in the face of disrupted systems (McNatt et al., 2019; Ansbro et al., 2021). This may materialise in dilemmas around following healthy living advice - developed in more stable settings - in the face of chronic food shortages, aid dependency, and lack of access to safe public or domestic spaces (Carruth et al., 2020). Some NCD risk factors, such as smoking, may also increase during times of crises (World Health Organization, 2023). None of these challenges can be addressed with a one-size-fits-all model. This raises the question of how humanitarian health efforts can draw on PLWNCDS' experiences to implement context-adapted, people-centred models of care (Jaung et al., 2021).

Peer support approaches may be able to address some of these issues. There is a good evidence base from higher-income countries (HICs) where peer support is recognised as an important adjunct to facility-based NCD care (Walker and Peterson, 2020). Despite limited evidence beyond HICs, peer support could - in theory - also be valuable with PLWNCDS in humanitarian settings. In this analysis paper, we discuss the rationale for peer support approaches in humanitarian settings as well as opportunities, challenges, and current uncertainties. We conclude this paper by proposing research priorities and by sharing an ongoing implementation research project. This analysis paper was developed based on a literature review on peer support approaches with PLWNCDS, an analysis of core findings, and discussions with key humanitarian and academic partners, who reviewed several drafts. Where evidence on peer support is lacking, we will bring in insights from related concepts, such as community health workers and shared medical appointments (Daniels et al., 2017; Kirsh et al., 2017).

2. Key concepts of peer support

"Peer support" refers to support provided by a person with shared characteristics and lived experiences. In this analysis paper, we focus on peer support with PLWNCDS - especially with diabetes and/ or hypertension - following the definition by Dennis [(Dennis, 2003), p.329]: "[peer support is] the provision of emotional, appraisal, and informational assistance by a created social network member who possesses experiential knowledge of a specific behaviour or stressor and similar characteristics as the target population". This definition allows for a broad interpretation of what constitutes relevant characteristics or experiences. In a healthcare context, peer support typically centres around shared experiences of living with a condition (Daniels et al., 2017). However, additional layers of (perceived) similarities shape peer dynamics, such as shared religious beliefs or place of origin (Daniels et al., 2017; Beales and Wilson, 2015). Excluded from the above definition, and this analysis paper, are embedded social networks (e.g., friends, family, community) and purely professional support.

2.1. What value can peer support deliver?

Peer support may address some of the workload burden and facility overcrowding by moving care out of the facility and task-sharing certain elements of care. Through this lens, peer support can be seen as a form of task shifting where specific responsibilities, such as "patient education", are moved to less specialized (health) workers or laypersons (Werfalli et al., 2020). By shifting these responsibilities, healthcare professionals

can focus their time on providing higher-quality care (Some et al., 2016). Peers may also be able to assume some of the self-care burden of PLWNCDS and their social networks. Task-shifting/ -sharing has been proposed as a useful component for models of NCD care in humanitarian settings (Ansbro et al., 2022). Peers' role may be particularly powerful in these settings, given that health professionals are limited in number and face acute time pressures.

Peer support's main value goes beyond substituting healthcare professionals for specific tasks. It can provide a distinct type of support to people's ability to seek, receive, and give (self-)care. Beyond impacting traditional health outcomes (e.g., clinical and well-being indicators) peer support can help PLWNCDS cope with the emotional and practical challenges of living with a condition. This view of peer support promotes it as a complementary, people-centred approach underpinned by a biopsychosocial model of care. As such, it may help overcome criticisms of the predominant biomedical models (e.g., risk of overmedicalisation, stigmatisation, and dehumanisation of PLWNCDS) (World Health Organization, 2023; Peers for Progress, n.d.). Importantly, people participating in peer support often highly value it and can be the strongest advocates for this approach (Walker and Peterson, 2020; Peers for Progress, n.d.).

Peer support can also influence the realm of politics and advocacy, by impacting communities, organisations, and policies though typically receiving less attention (Evans et al., 2021). For example, the presence of peers may help institutionalise the role of lived experiences and person-centredness or a program's visibility can shape community perceptions and norms. Similarly, bringing together people with shared challenges may enable them to organise and advocate for their rights with governments or institutions.

2.2. How does peer support work?

Peer support is a complex social intervention with many potential impact pathways (Thompson et al., 2022). Fundamentally, it is thought to work due to peers' ability to build on experiential knowledge, such as living with a condition (Walker and Peterson, 2020; Peers for Progress, 2023; Lorthios-Guilledroit et al., 2018). Optimally, peer interactions are guided by non-judgemental, reciprocal, and non-hierarchical support (Repper and Walker, 2021). This renders peer relationships unlike most others in healthcare or formal support systems, typically characterised by the notion of an "expert" and a "recipient/ patient/ beneficiary". Despite a general agreement on the relevance of these core features, few evaluations or research studies focused on understanding how peer support works (Thompson et al., 2022).

One impact pathway that is frequently discussed is people's self-care and the behavioural change aspects integral to it (e.g., diet adaptations, physical exercise, smoking habits). Changing behaviours is extremely challenging anywhere, especially when external support is lacking (Matheson et al., 2015). In humanitarian settings, this support is often limited to patient education sessions integrated into clinical consultations (Ansbro et al., 2022). These sessions typically centre on disease-specific information and individuals' choices (e.g., variations of "eat healthy food" or "exercise more"). Their design and messages are often not context-adapted and cognisant of access limitations in emergency settings to adequate food and exercise options (Murphy et al., 2017). The importance of this informational component remains undisputed. Yet, relying exclusively on such approaches often fails to support PLWNCDS in initiating and - in particular - maintaining self-care practices (Matheson et al., 2015; Kelly and Barker, 2016). Peers' unique characteristics enable them to help each other in exploring culturally and contextually relevant ways of managing their conditions (clinically, domestically, psychologically, economically, etc.) (Thompson et al., 2022). Peer interactions go beyond simple listening and sharing (Peers

for Progress, 2023; Repper and Walker, 2021).

Examples of peer interactions (Beales and Wilson, 2015; Repper and Walker, 2021)

- * Listen and share experiences and challenges
- * Help with identifying personal goals and individualised ways to achieve them
- * Consider people’s background and their resources
- * Demonstrate the possibility of self-management and recovering a meaningful life
- * Support coping with challenges and validating and normalising experiences

There are many possible explanations for why these interactions may be impactful. Studies commonly try to understand these interactions through *social identity theory*, *social cognitive theory*, or *social comparison theory* (Thompson et al., 2022; Halsall et al., 2022). These theories build on the social aspect of care and how behaviours are shaped due to ingroup social norms, comparisons, or observations. Another interpretation relates to how these interactions may – intentionally or not – exhibit *behaviour change techniques*. These are considered replicable, active ingredients of behavioural change interventions that were developed based on expert consensus (Michie et al., 2013). For example, goal setting, problem-solving, or self-monitoring of behaviour. These processes and theories often share core concepts such as self-efficacy, coping, hope, empowerment, and recovery (Halsall et al., 2022).

In the absence of established impact pathways, some have suggested that there are five core functions underlying peer support (Evans et al., 2021). They include *being there*, *assistance in daily management*, *social and emotional support*, *linkage to care*, and *ongoing support*. The functions capture several of the themes discussed throughout this section, including peers’ multi-layered support (i.e., continuous practical, social, and emotional support). They further emphasise the inherent value of a peer’s presence (*being there*) as well as their role in linking to existing healthcare services.

2.3. How is peer support usually delivered?

Peer support can vary in terms of design and implementation (Who, What, How, Where, When). It can use diverse combinations of possible characteristics presented in Table 1 (Werfalli et al., 2020; Thompson et al., 2022; N. National Voices, 2015; Zhang et al., 2016; Qi et al., 2015). It is important to highlight that even in interventions led by non-peers (e.g., health professionals), the focus remains on the experiential sharing and support amongst peers.

2.4. Evidence of peer support effectiveness

Peer support has a good evidence base across a wide range of conditions in HICs (Evans et al., 2021). For PLWNCs, peer support was shown to significantly improve clinical outcomes (Thompson et al., 2022; Qi et al., 2015; Azmiardi et al., 2021; E.B. Fisher et al., 2017) and cost-effectiveness (E.B. Fisher et al., 2017). While some reviews identified studies with inconclusive or negative results – especially for non-clinical outcomes – authors often concluded peer support to be effective. Mixed results were thought to be linked to implementation issues, research designs and intervention reporting, or diverging definitions (Thompson et al., 2022; E.B. Fisher et al., 2017). Similarly, evidence from low- and middle-income countries (LMICs) seems promising

Table 1
Overview of potential peer support modalities.

WHO	WHAT	HOW	WHERE	WHEN
<ul style="list-style-type: none"> • Trained peers • Untrained peers • Paid peers • Volunteers • Peers with certain identities/ characteristics • Lay people • Professionals • Undefined/ co-led 	<ul style="list-style-type: none"> • Education (topic-based) • Activity-based • Peer-delivered services • Discussion • Mentoring • Emotional and social support • Practical support • Accompaniment 	<ul style="list-style-type: none"> • One-to-one • Small groups • Large groups • Open participation • Closed participation 	<ul style="list-style-type: none"> • Own home • Community venue • Health facility • Telephone-based • Online-based • Text messages 	<ul style="list-style-type: none"> • < 3 months/ ad-hoc • 3 – 6 months • > 6 months • HOW OFTEN • Individual session • Weekly/ bi-weekly • Monthly • Less than monthly

but inconclusive across clinical, behavioural, and psychological outcomes (Werfalli et al., 2020; Pienaar and Reid, 2020).

Within the available literature on peer support with PLWNCs, some good design and implementation practices were identified. These include:

- (1) potential benefits of longer duration interventions (>3–6 months), maintaining moderate-to-high frequency of contact (e.g., weekly, bi-weekly),
- (2) selecting participants with “unfavourable” clinical values (e.g., high HbA1c for people living with diabetes) and with shared characteristics,
- (3) the careful selection and training of peer support leaders/facilitators (Lorthios-Guillement et al., 2018; Zhang et al., 2016; Qi et al., 2015; Palmas et al., 2015; Embuldeniya et al., 2013; Tang and Funnell, 2011). The importance of ‘peerness’ amongst participants and facilitators included both lived experiences as well as contextually relevant characteristics (Thompson et al., 2022; Lorthios-Guillement et al., 2018),
- (4) a strong emphasis on sessions with a behavioural and affective focus (relating to moods, feelings, and attitudes; e.g., motivational interviewing) may be more impactful than informational sessions alone (Funnell, 2010; Lorthios-Guillement et al., 2018; Embuldeniya et al., 2013), and
- (5) involving family and friends, considering co-morbidities, and designing for underrepresented groups can play a key role; though it is not clear how best to address these issues in practice (Baksi, 2010; Shahin et al., 2018; Zhong et al., 2015; Ribeiro et al., 2011).

The success of peer support interventions may depend more on their ability to fulfil the five core functions, rather than on specific implementation protocols (Fisher et al., 2015). The listed good practices may thus be seen as strong – but flexible – options to fulfil these functions across settings. They are not a rigid implementation guide. This argumentation aligns with the key mechanistic functions proposed Lorthios-Guillement et al. (Lorthios-Guillement et al., 2018). They similarly emphasise the need to align a programme with the existing context. Their framework also highlights a programme’s ability to foster positive *interactions* and create trust, as well as the need for *self-organising* with sufficient resources at all levels.

2.5. Measuring peer support intervention outcomes

Evaluations of peer support interventions often explore similar outcomes, though significant variation remains (Thompson et al., 2022). Of two systematic reviews of peer support with people living with diabetes in LMICs, interventions generally aimed to improve psychological outcomes (e.g., self-efficacy, knowledge, quality of life, depression), self-care behaviours (e.g., medication “adherence”, consumption of fruit and vegetables), or clinical outcomes (e.g., glycaemic control, blood pressure control, and anthropometric measures) (Werfalli et al., 2020; Pienaar and Reid, 2020). Few studies reported on “hard endpoints” (e.g., co-morbidity, micro-/ macrovascular events, and mortality) and most had a follow-up period of less than twelve months (Werfalli et al., 2020). Similar measures were observed in global systematic reviews and meta-analyses focused on studies in HICs. (Thompson et al., 2022; Azmiardi et al., 2021; E.B. Fisher et al., 2017). Additional outcomes include healthcare utilisation, social integration and connectedness, the impact on or support by families, and people’s concerns (Thompson et al., 2022; E.B. Fisher et al., 2017; N. National Voices, 2023). Most studies used validated questionnaires (Werfalli et al., 2020; Zhong et al.,

2015). Mixed methods approaches were occasionally used. They employed qualitative methods to explore the intervention’s implementation, stakeholder perceptions and acceptability, or contextual variables (Zhong et al., 2015; Tran et al., 2013). Ongoing efforts to develop consensus outcome measures exist in HICs (N. National Voices, 2023).

The potential of peer support approaches in humanitarian settings Despite promising evidence of NCD peer support interventions in stable settings, existing research specific to humanitarian settings is limited.

The scarce available evidence includes a randomized controlled trial on diabetes peer educators in Mali (Debussche et al., 2018) and a quasi-experimental study on nurse-led micro-clinics with Palestinian refugees living with diabetes and their social networks (Shahin et al., 2018). Although neither study formally evaluated impact pathways, the authors suggested possible factors to explain the observed successes. They included (i) high-quality training and active involvement of peer educators, (ii) the involvement of patients’ networks, (iii) high meeting frequency, (iv) a focus on behavioural strategies, and (v) culturally competent interventions. These limited - but promising - results align with the conclusions of Fisher et al. (E.B. Fisher et al., 2017) systematic review, arguing that the implementation of peer support is possible even in under-resourced settings. Beyond NCDs, peer support has been used

frequently and successfully in humanitarian settings. Experiences range from infectious diseases to mental health and psychosocial support (MHPSS), and sexual and reproductive health (Gyawali et al., 2021; Jennings et al., 2019). For example, a peer educator program in a refugee camp in Guinea successfully improved HIV knowledge and induced behavioural changes (Woodward et al., 2011). The role of peer supporters is also integrally linked to many MHPSS strategies in humanitarian settings (Mukdarut et al., 2017; Inter-Agency Standing Committee, 2006).

While the core value of peer support holds relevance for PLWNCDs in humanitarian settings, a deeper understanding of factors influencing its implementation and the five core functions is needed. It is important to acknowledge here that the umbrella term “humanitarian settings” includes vastly heterogeneous contexts. Ranging from pandemics to disasters- and conflict-affected contexts, as well as including protracted and rapid-onset crises. In general, peer support may be most feasible in protracted humanitarian crises due to their relative stability. However, even in more volatile and rapid-onset crises, shorter-term and less-intensive approaches may be feasible and valuable, especially as part of an extended response package (Gee and Harlass, 2022; Miller et al., 2020). Established peer support networks may be mobilised during acute crises.

Table 2 provides an overview of the theoretical challenges and

Table 2
Potential opportunities and challenges for peer support with PLWNCDs in humanitarian settings.

	Challenges	Opportunities
Access	<ul style="list-style-type: none"> Uncertain feasibility of longer-duration interventions in settings with highly mobile populations. Active conflict or lack of transport means prevents people from attending, particularly for medium-high frequency and in-person meetings (Miller et al., 2020). PLWNCDs obtain care from multiple locations with the possibility of receiving contradictory information and a lack of continuous contact with one organisation. 	<ul style="list-style-type: none"> Bring care closer to the community and improving access to and linkages with facility-based care (Guergues, 2023). Ensure continuity of peer support through the use of e-Health approaches (e.g., WhatsApp group) (Miller et al., 2020). Development of self-organised peer networks that may form larger rights-based movements, campaigning, and advocacy (Beales and Wilson, 2015; Guergues, 2023).
Human resources	<ul style="list-style-type: none"> Interventions require minimal capacity of overstretched clinical staff (e.g., for informational sessions) who may need additional training (Miller et al., 2020). Task-shifting is overburdening peer support leaders/ facilitators/ volunteers. Issues range from unclear role descriptions, competing priorities, lack of wider health system strengthening, and a perception of them as “cheap labour” (Beales and Wilson, 2015; Guergues, 2023; Mundeve et al., 2018). A lack of support and supervision causes harm to peer facilitators, e.g., accentuate mental health problems (Miller et al., 2020). 	<ul style="list-style-type: none"> Task-shifting responsibilities can circumvent limited human resource capacity in the existing healthcare system (Debussche et al., 2018). Peers alleviate the burden on health professionals by reducing the frequency of facility visits, potentially leading to improved quality of care. Peers’ ability to provide high-quality, effective care and ensure “fidelity” of a programme’s implementation (Miller et al., 2020).
Logistics and implementation	<ul style="list-style-type: none"> Lack of community-based, safe, and appropriate spaces (e.g., destroyed facilities, lack of privacy, or affordability of heating options). Limited implementation options through compromised transport, electricity, or communication infrastructure. 	<ul style="list-style-type: none"> Adaptability of peer support modalities to match the evolving context and capacities (e.g., hybrid approaches) (Ansbro et al., 2022; Murphy et al., 2017). Opportunities to implement ‘light’ peer support models with relatively minor resource requirements.
Needs and trust	<ul style="list-style-type: none"> Disruption of people’s trust due to a crisis or historic experiences with certain actors, including ruling authorities and humanitarian organisations. Mistrust may be societal or targeted at certain (minority) groups (Miller et al., 2020; Pearce et al., 2016). Some subgroups may be particularly vulnerable or difficult to engage, e.g., religious minorities, people living with disabilities, or men (Shahin et al., 2018; Cohen and Yaeger, 2021). Unclear priorities of PLWNCDs and questions of peer support acceptability relative to consultations and medicines (McNatt et al., 2019; Maconick et al., 2020). Potential unintended harm caused to participating PLWNCDs (e.g., emotional distress, receiving of misinformation) (Embuldeniya et al., 2013; Ryan et al., 2021). 	<ul style="list-style-type: none"> Increased legitimacy of homogeneous, well-trained, and carefully selected peer supporters/ facilitators (Pienaar and Reid, 2020; Guergues, 2023; Ryan et al., 2021). Ability to provide contextually relevant, crisis-adaptive, and culturally appropriate support, including with vulnerable sub-groups (Miller et al., 2020; Guergues, 2023; Cohen and Yaeger, 2021). The scope of peer interventions can be flexible and allow for co-designing by the participants (Beales and Wilson, 2015; Cohen and Yaeger, 2021).
Funding and sustainability	<ul style="list-style-type: none"> Underfunded humanitarian responses favour simple-to-hand-over interventions and key actors, including humanitarian and governmental, do not perceive peer support as a priority (Cohen and Yaeger, 2021). Absence of formal exit strategies after humanitarian funding cycles end may reverse the potential positive effects of peer support (Aebischer Perone et al., 2017). Interrupted medicine availability negatively impacts the perceived value of peer support. High turnover of laypersons or non-medical staff due to lack of compensation (Jennings et al., 2019; Guergues, 2023). 	<ul style="list-style-type: none"> Implement peer support as part of a comprehensive health system response strategy to make full use of its strengths. Support patients during periods where access to basic inputs is disrupted, including practical and emotional challenges (e.g., problem-solving and coping skills training) (Miller et al., 2020). Resilience of peer support interventions in the face of humanitarian volatility (Miller et al., 2020).

opportunities related to peer support design and implementation in humanitarian settings. The table is based on consensus and anecdotal evidence and some existing research from other settings or priority areas.

The challenges and opportunities listed above are sound but theoretical and are non-exhaustive. To truly learn from existing projects and advance our understanding of its potential value in humanitarian settings, formal evaluations or implementation research projects are essential. Building this evidence will allow to better advocate for and integrate peer support with PLWNCDs in humanitarian settings.

3. An opportunity to increase the evidence base

The Lebanese Red Cross (LRC), supported by the Danish Red Cross (DRC), is implementing peer support groups with people living with diabetes and/ or hypertension in Lebanon. The six-month intervention follows a context-adapted manual. It consists of in-person meetings every two weeks at four participating health centres. Sessions are facilitated by a social worker and supported by medical staff. Peer meetings are complemented by WhatsApp groups (depending on peers' access), self-care resources, blood pressure monitors, and a buddy system. Over the project period from 2023 to 2024, a total of 300 PLWNCDs are expected to participate in the groups. To evaluate this peer support intervention, a parallel mixed-methods implementation research study is being conducted using the RE-AIM/PRISM framework (McCreight et al., 2019). The study is being undertaken within the Partnering for Change (P4C) initiative (Inter-Agency Standing Committee, 2022) by the London School of Hygiene and Tropical Medicine, LRC, DRC, and local research consultants. It is collecting and triangulating diverse data sources, including routine clinical and survey data as well as qualitative data from interviews, focus group discussions, and observations. The quantitative component employs a prospective controlled before-and-after design. It evaluates changes in clinical indicators (HbA1c and blood pressure) as well as in participants' quality of life, self-care behaviours, and shared decision-making. The qualitative component is exploring contextual factors and implementation outcomes such as *Reach*, *Acceptability*, *Implementation*, and *Maintenance*. This study is, to the best of our knowledge, the first implementation research project of peer support with PLWNCDs in humanitarian settings. It will provide an important contribution to our current understanding of peer support interventions by exploring factors influencing their implementation and – potential – successes in protracted humanitarian crises.

4. Conclusions and call to action

Peer support approaches with PLWNCDs may be impactful in humanitarian settings, but their potential value remains theoretical in the absence of evidence. There are existing peer support efforts for HIV and MHPSS in humanitarian settings and from more stable LMICs that we can build on. To advance peer support and person-centred NCD care in humanitarian settings, more implementation research is needed to evaluate the effects and impact pathways of interventions.

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CRediT authorship contribution statement

Benjamin Schmid: Conceptualization, Methodology, Project administration, Validation, Writing – original draft, Writing – review & editing. **Carla Njeim:** Conceptualization, Methodology, Project

administration, Validation, Writing – review & editing. **Lavanya Vijayasingham:** Conceptualization, Project administration, Validation, Writing – review & editing, Methodology, Writing – original draft. **Leah Anku Sanga:** Conceptualization, Validation, Writing – review & editing, Methodology. **Rima Kighsro Naimi:** Conceptualization, Project administration, Validation, Writing – review & editing. **Fouad M. Fouad:** Conceptualization, Validation, Writing – review & editing, Methodology. **Chaza Akik:** Conceptualization, Validation, Writing – review & editing, Methodology. **Carla Zmeter:** Conceptualization, Validation, Writing – review & editing. **Sigiriya Aebischer Perone:** Conceptualization, Validation, Writing – review & editing, Funding acquisition, Methodology. **Lars Bruun Larsen:** Conceptualization, Funding acquisition, Supervision, Validation, Writing – review & editing, Methodology. **Jytte Roswall:** Conceptualization, Funding acquisition, Supervision, Validation, Writing – review & editing, Methodology. **Éimhín Ansbro:** Conceptualization, Methodology, Project administration, Supervision, Validation, Writing – original draft, Writing – review & editing. **Pablo Perel:** Conceptualization, Funding acquisition, Methodology, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

- Aebischer Perone, S., Martinez, E., Du Mortier, S., Rossi, R., Pahud, M., Urbaniak, V., Chappuis, F., Hagon, O., Jacquéroiz Bausch, F., Beran, D., 2017. Non-communicable diseases in humanitarian settings: ten essential questions. *Confl. Health* 11, 1–11.
- Ansbro, É., Homan, T., Qasem, J., Bil, K., Rasoul Tarawneh, M., Roberts, B., Perel, P., Jobanputra, K., 2021. MSF experiences of providing multidisciplinary primary level NCD care for Syrian refugees and the host population in Jordan: an implementation study guided by the RE-AIM framework. *BMC. Health Serv. Res.* 21, 1–19.
- Ansbro, É., Issa, R., Willis, R., Blanchet, K., Perel, P., Roberts, B., 2022. Chronic NCD care in crises: A qualitative study of global experts' perspectives on models of care for hypertension and diabetes in humanitarian settings. *J. Migr. Health* 5. <https://doi.org/10.1016/j.jmh.2022.100094>.
- Azmiardi, A., Murti, B., Febrinasi, R.P., Tamtomo, D.G., 2021. The effect of peer support in diabetes self-management education on glycemic control in patients with type 2 diabetes: A systematic review and meta-analysis. *Epidemiol. Health* 43. <https://doi.org/10.4178/epih.e2021090>.
- Baksi, A.K., 2010. Experiences in peer-to-peer training in diabetes mellitus: challenges and implications. *Fam. Pract.* 27, 140–145. <https://doi.org/10.1093/fampra/cmp014>.
- Beales, A., Wilson, J., 2015. Peer support – the what, why, who, how and now. *J. Ment. Health Train. Edu. Pract.* 10, 314–324. <https://doi.org/10.1108/JMHTEP-03-2015-0013>.
- Bommer, C., Heesemann, E., Sagalova, V., Manne-Goehler, J., Atun, R., Bärnighausen, T., Vollmer, S., 2017. The global economic burden of diabetes in adults aged 20–79 years: a cost-of-illness study. *Lancet Diabetes. Endocrinol.* 5, 423–430.
- Carruth, L., Ateye, M.J., Nassir, A., Hosh, F.M., Mendenhall, E., 2020. Diabetes in a humanitarian crisis: Atypical clinical presentations and challenges to clinical- and community-based management among Somalis in Ethiopia. *Glob. Public Health* 15, 828–839. <https://doi.org/10.1080/17441692.2020.1718735>.
- Cohen, F., Yaeger, L., 2021. Task-shifting for refugee mental health and psychosocial support: A scoping review of services in humanitarian settings through the lens of RE-AIM. *Implement. Res. Pract.* 2, 263348952199879. <https://doi.org/10.1177/2633489521998790>.
- CSDH, 2008. Closing the Gap in a generation: Health Equity Through Action On the Social Determinants of health: Final Report of the Commission On Social Determinants of Health. World Health Organization. <https://apps.who.int/iris/bitstream/handle/10665/43943/97892?sequence=1>. accessed July 12, 2023.
- Daniels, A.S., Bergeson, S., Myrick, K.J., 2017. Defining peer roles and status among community health workers and peer support specialists in integrated systems of care. *Psychiatric Services* 68, 1296–1298. <https://doi.org/10.1176/appi.ps.201600378>.
- Debussche, X., Besançon, S., Balcou-Debussche, M., Ferdynus, C., Delisle, H., Huiart, L., Sidibe, A.T., 2018. Structured peer-led diabetes self-management and support in a low-income country: The ST2EP randomised controlled trial in Mali. *PLoS One* 13. <https://doi.org/10.1371/journal.pone.0191262>.
- Dennis, C.L., 2003. Peer support within a health care context: a concept analysis. *Int. J. Nurs. Stud.* 40, 321–332. [https://doi.org/10.1016/S0020-7489\(02\)00092-5](https://doi.org/10.1016/S0020-7489(02)00092-5).
- Embuldeniya, G., Veinot, P., Bell, E., Bell, M., Nyhof-Young, J., Sale, J.E.M., Britten, N., 2013. The experience and impact of chronic disease peer support interventions: A

- qualitative synthesis. *Patient. Educ. Couns.* 92, 3–12. <https://doi.org/10.1016/j.pec.2013.02.002>.
- Evans, M., Daaleman, T., Fisher, E.B., 2021. Peer Support for Chronic Medical Conditions. In: Avery, J.D. (Ed.), *Peer Support in Medicine: A Quick Guide*. Springer International Publishing, Cham, pp. 49–69. https://doi.org/10.1007/978-3-030-58660-7_3.
- Fisher, E.B., Ballesteros, J., Bhushan, N., Coufal, M.M., Kowitz, S.D., McDonough, A.M., Parada, H., Robinette, J.B., Sokol, R.L., Tang, P.Y., Urlaub, D., 2015. Key Features Of Peer Support In Chronic Disease Prevention And Management. *Health Aff.* 34, 1523–1530. <https://doi.org/10.1377/hlthaff.2015.0365>.
- Fisher, E.B., Boothroyd, R.I., Elstad, E.A., Hays, L., Henes, A., Maslow, G.R., Velicer, C., 2017. Peer support of complex health behaviors in prevention and disease management with special reference to diabetes: systematic reviews. *Clin. Diabetes. Endocrinol.* 3 <https://doi.org/10.1186/s40842-017-0042-3>.
- Fisher, E.B., Boothroyd, R.I., Elstad, E.A., Hays, L., Henes, A., Maslow, G.R., Velicer, C., 2017. Peer support of complex health behaviors in prevention and disease management with special reference to diabetes: systematic reviews. *Clin. Diabetes. Endocrinol.* 3, 1–23.
- Funnell, M.M., 2010. Peer-based behavioural strategies to improve chronic disease self-management and clinical outcomes: evidence, logistics, evaluation considerations and needs for future research. *Fam. Pract.* 27 (1) <https://doi.org/10.1093/fampra/cmp027>. Suppl.
- S. Gee, S. Harlass, *Operational Guidance: Community Health in Refugee Settings*, 2022. <https://www.unhcr.org/sites/default/files/legacy-pdf/63ef7c2f4.pdf> (accessed September 24, 2023).
- Guergues, A., 2023. Long hours and low budgets: Meet the refugee groups supporting Sudanese displaced in Egypt. *The New Humanitarian*. https://www.thenewhumanitarian.org/news-feature/2023/09/20/refugee-groups-supporting-sudanese-displaced-egypt?utm_source=The+New+Humanitarian&utm_campaign=9343b203a2-EMAIL_CAMPAIGN_2023_09_21&utm_medium=email&utm_term=0_d842d98289-9343b203a2-75687374 (accessed September 21, 2023).
- Gyawali, B., Harasym, M.C., Hassan, S., Cooper, K., Boschma, A., Bird, M., Konradsen, F., Raju, E., Tellier, S., 2021. Not an ‘either/or’: Integrating mental health and psychosocial support within non-communicable disease prevention and care in humanitarian response. *J. Glob. Health* 11.
- Halsall, T., Daley, M., Hawke, L., Henderson, J., Matheson, K., 2022. You can kind of just feel the power behind what someone’s saying”: a participatory-realist evaluation of peer support for young people coping with complex mental health and substance use challenges. *BMC. Health Serv. Res.* 22, 1358. <https://doi.org/10.1186/s12913-022-08743-3>.
- Inter-Agency Standing Committee, 2006. *IASC Guidelines On Mental Health and Psychosocial Support in Emergency Settings*. IASC, Geneva, Switzerland, p. 2006.
- Partnering for Change, *Partnering for Change webpage*, (2022). <https://www.humanitarianaction.org/> (accessed March 5, 2023).
- Jaung, M.S., Willis, R., Sharma, P., Aebischer Perone, S., Frederiksen, S., Truppa, C., Roberts, B., Perel, P., Blanchet, K., Ansbro, E., 2021. Models of care for patients with hypertension and diabetes in humanitarian crises: a systematic review. *Health Policy Plan* 36, 509–532.
- Jennings, L., George, A.S., Jacobs, T., Blanchet, K., Singh, N.S., 2019. A forgotten group during humanitarian crises: a systematic review of sexual and reproductive health interventions for young people including adolescents in humanitarian settings. *Confl. Health* 13, 57. <https://doi.org/10.1186/s13031-019-0240-y>.
- Kelly, M.P., Barker, M., 2016. Why is changing health-related behaviour so difficult? *Public Health* 136, 109–116. <https://doi.org/10.1016/j.puhe.2016.03.030>.
- Kirsh, S.R., Aron, D.C., Johnson, K.D., Santurri, L.E., Stevenson, L.D., Jones, K.R., Jagosh, J., 2017. A realist review of shared medical appointments: How, for whom, and under what circumstances do they work? *BMC. Health Serv. Res.* 17 <https://doi.org/10.1186/s12913-017-2064-z>.
- Lorthios-Guilledroit, A., Richard, L., Filiatrault, J., 2018. Factors associated with the implementation of community-based peer-led health promotion programs: A scoping review. *Eval. Program Plann.* 68, 19–33. <https://doi.org/10.1016/j.evalprogplan.2018.01.008>.
- Maconick, L., Ansbro, E., Ellithy, S., Jobanputra, K., Tarawneh, M., Roberts, B., 2020. To die is better for me”: social suffering among Syrian refugees at a noncommunicable disease clinic in Jordan: a qualitative study. *Confl. Health* 14, 63. <https://doi.org/10.1186/s13031-020-00309-6>.
- Matheson, G.O., Pacione, C., Shultz, R.K., Klügl, M., 2015. Leveraging Human-Centered Design in Chronic Disease Prevention. *Am. J. Prev. Med.* 48, 472–479. <https://doi.org/10.1016/j.amepre.2014.10.014>.
- McCreight, M.S., Rabin, B.A., Glasgow, R.E., Ayele, R.A., Leonard, C.A., Gilmartin, H.M., Frank, J.W., Hess, P.L., Burke, R.E., Battaglia, C.T., 2019. Using the Practical, Robust Implementation and Sustainability Model (PRISM) to qualitatively assess multilevel contextual factors to help plan, implement, evaluate, and disseminate health services programs. *Transl. Behav. Med.* 9, 1002–1011. <https://doi.org/10.1093/tbm/ibz085>.
- McNatt, Z.Z., Freels, P.E., Chandler, H., Fawad, M., Qarmout, S., Al-Oraibi, A.S., Boothby, N., 2019. What’s happening in Syria even affects the rocks”: a qualitative study of the Syrian refugee experience accessing noncommunicable disease services in Jordan. *Confl. Health* 13, 26. <https://doi.org/10.1186/s13031-019-0209-x>.
- Michie, S., Richardson, M., Johnston, M., Abraham, C., Francis, J., Hardeman, W., Eccles, M.P., Cane, J., Wood, C.E., 2013. The Behavior Change Technique Taxonomy (v1) of 93 Hierarchically Clustered Techniques: Building an International Consensus for the Reporting of Behavior Change Interventions. *Annals of Behavioral Medicine* 46, 81–95. <https://doi.org/10.1007/s12160-013-9486-6>.
- Miller, N.P., Ardestani, F.B., Dini, H.S., Shafique, F., Zunong, N., 2020. Community Health Workers in Humanitarian Settings: Scoping Review. *J. Glob. Health* 10, 1–21. <https://doi.org/10.7189/jogh.10.020602>.
- B. Mukdarut, A. Chiumento, K. Dickson, L. Felix, The impact of mental health and psychosocial support interventions on people affected by humanitarian emergencies: a systematic review, (2017).
- Mundeva, H., Snyder, J., Ngilangwa, D.P., Kaida, A., 2018. Ethics of task shifting in the health workforce: exploring the role of community health workers in HIV service delivery in low- and middle-income countries. *BMC. Med. Ethics* 19, 71. <https://doi.org/10.1186/s12910-018-0312-3>.
- Murphy, A., Biringanine, M., Roberts, B., Stringer, B., Perel, P., Jobanputra, K., 2017. Diabetes care in a complex humanitarian emergency setting: a qualitative evaluation. *BMC. Health Serv. Res.* 17, 431. <https://doi.org/10.1186/s12913-017-2362-5>.
- N. National Voices, *Peer Support: What Is It and Does It Work?*, 2015. <https://www.nationalvoices.org.uk/publications/our-publications/peer-support> (accessed November 23, 2022).
- Peers for Progress, *Evaluate Peer Support*, (2023). <https://peersforprogress.org/take-action/evaluate-peer-support/> (accessed July 10, 2023).
- Palmas, W., March, D., Darakjy, S., Findley, S.E., Teresi, J., Carrasquillo, O., Luchsinger, J.A., 2015. Community Health Worker Interventions to Improve Glycemic Control in People with Diabetes: A Systematic Review and Meta-Analysis. *J. Gen. Intern. Med.* 30, 1004–1012. <https://doi.org/10.1007/s11606-015-3247-0>.
- Pearce, E., Paik, K., Robles, O.J., 2016. Adolescent girls with disabilities in humanitarian settings: “I am not ‘worthless’ - I am a girl with a lot to share and offer. *Girlhood Studies* 9, 118–136. <https://doi.org/10.3167/ghs.2016.090109>.
- Peers for Progress, *What is Peer Support?*, (2023). <https://peersforprogress.org/learn-about-peer-support/what-is-peer-support/> (accessed June 27, 2023).
- Peers for Progress, *Global Evidence for Peer Support: Humanizing Health Care*, n.d.
- Pienaar, M., Reid, M., 2020. Self-management in face-to-face peer support for adults with type 2 diabetes living in low- or middle-income countries: a systematic review. *BMC. Public Health* 20. <https://doi.org/10.1186/s12889-020-09954-1>.
- Qi, L., Liu, Q., Qi, X., Wu, N., Tang, W., Xiong, H., 2015. Effectiveness of peer support for improving glycaemic control in patients with type 2 diabetes: A meta-analysis of randomized controlled trials. *BMC. Public Health* 15. <https://doi.org/10.1186/s12889-015-1798-y>.
- Repper, J., Walker, L., 2021. *Peer support for people with physical health conditions*. Nottinghamshire Healthcare NHS Foundation Trust.
- Ribeiro, A.G., Ribeiro, S.M.R., Dias, C.M.G.C., Ribeiro, A.Q., Castro, F.A.F., Suárez-Varela, M.M., Cotta, R.M.M., 2011. Non-pharmacological treatment of hypertension in primary health care: A comparative clinical trial of two education strategies in health and nutrition. *BMC. Public Health* 11, 637. <https://doi.org/10.1186/1471-2458-11-637>.
- Ryan, G.K., Bauer, A., Endale, T., Qureshi, O., Doukani, A., Cerga-Pashoja, A., Brar, S.K., Eaton, J., Bass, J.K., 2021. Lay-delivered talk therapies for adults affected by humanitarian crises in low- and middle-income countries. *Confl. Health* 15, 30. <https://doi.org/10.1186/s13031-021-00363-8>.
- Schmid, B., Raju, E., 2021. *Humanitarian Crisis and Complex Emergencies: Burden of Disease, Response, and Opportunities for Global Health*. Handbook of Global Health. Springer, pp. 2437–2472.
- Shahin, Y.M., Kishk, N.A., Turki, Y., Saleh, S., Ding, E.L., Zoughbie, D.E., Seita, A., 2018. Evaluation of the Microclinic Social Network Model for Palestine Refugees with Diabetes at UNRWA Health Centers. *J. Diabetes. Mellitus.* 08, 99–113. <https://doi.org/10.4236/jdm.2018.84010>.
- Some, D., Edwards, J.K., Reid, T., Van den Bergh, R., Kosgei, R.J., Wilkinson, E., Baruani, B., Kizito, W., Khabala, K., Shah, S., 2016. Task shifting the management of non-communicable diseases to nurses in Kibera, Kenya: does it work? *PLoS. One* 11, e0145634.
- Tang, T., Funnell, M., 2011. *Peer Leader Manual*. International Diabetes Federation, Brussels.
- Thompson, D.M., Booth, L., Moore, D., Mathers, J., 2022. Peer support for people with chronic conditions: a systematic review of reviews. *BMC. Health Serv. Res.* 22 <https://doi.org/10.1186/s12913-022-07816-7>.
- T. Tran, N. Dang, W. Deoisres, P. Keeratiyutawong, L. Baumann, Effectiveness of a diabetes self-management support intervention in Vietnamese adults with type 2 diabetes, 2013.
- Walker, C., Peterson, C.L., 2020. Where Does Value Lie in Peer Support? An Exploratory Discussion of the Theories and Methods Underpinning Effective Research in Peer Support. *Qual. Health Res.* 31, 218–227. <https://doi.org/10.1177/1049732320964173>.
- Werfalli, M., Raubenheimer, P.J., Engel, M., Musekiwa, A., Bobrow, K., Peer, N., Hoegfeldt, C., Kalula, S., Kengne, A.P., Levitt, N.S., 2020. The effectiveness of peer and community health worker-led self-management support programs for improving diabetes health-related outcomes in adults in low- and middle-income countries: a systematic review. *Syst. Rev.* 9, 133. <https://doi.org/10.1186/s13643-020-01377-8>.
- Woodward, A., Howard, N., Souare, Y., Kollie, S., von Roenne, A., Borchert, M., 2011. Reproductive health for refugees by refugees in Guinea IV: Peer education and HIV knowledge, attitudes, and reported practices. *Confl. Health* 5, 10. <https://doi.org/10.1186/1752-1505-5-10>.
- World Health Organization, 2016. *Framework on integrated, people-centred health services*. Report by the Secretariat. https://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_39-en.pdf. accessed June 27, 2023.
- World Health Organization, *World No Tobacco Day 2023: Ukraine survey results highlight challenges*, (2023). <https://www.who.int/europe/news/item/31-05-2023-world-no-tobacco-day-2023-ukraine-survey-results-highlight-challenges> (accessed July 31, 2023).
- World Health Organization, *WHO framework for meaningful engagement of people living with noncommunicable diseases, and mental health and neurological*

- conditions, Geneva, 2023. <https://www.who.int/publications-detail-redirect/9789240073074> (accessed May 31, 2023).
- Zhang, X., Yang, S., Sun, K., Fisher, E.B., Sun, X., 2016. How to achieve better effect of peer support among adults with type 2 diabetes: A meta-analysis of randomized clinical trials. *Patient. Educ. Couns.* 99, 186–197. <https://doi.org/10.1016/j.pec.2015.09.006>.
- Zhong, X., Wang, Z., Fisher, E.B., Tanasugarn, C., 2015. Peer support for diabetes management in primary care and community settings in Anhui Province, China. *Ann. Fam. Med.* 13, S50–S58. <https://doi.org/10.1370/afm.1799>.