



Community health worker interventions for healthy ageing in community for older people in the United States and globally: A scoping review

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Table of Contents

1 LAY SUMMARY	3
2 ABSTRACT	5
3 BACKGROUND	7
3.1 Older people	7
3.2 Healthy ageing	7
3.3 Community health workers.....	9
3.4 CHW interventions for healthy ageing in community	11
4 METHODS	13
4.1 Inclusion criteria	13
4.3 Search strategy	15
4.4 Screening	16
4.5 Data extraction	17
4.6 Data analysis and presentation.....	17
5 RESULTS	20
5.1 Summary characteristics of included papers	20
5.2 Information about CHW roles.....	31
5.3 Characteristics of interventions delivered	33
5.4 Information about outcomes.....	41
5.5 Health equity	52
5.6 Social connection	52
5.7 Supporting healthy ageing	53
6 DISCUSSION	57
6.1 Summary of findings.....	57
6.2 Implications for policy and practice	57
6.3 Implications for future research.....	66
6.4 Strengths and limitations.....	69
7 CONCLUSION.....	71
8 REFLECTION	72
ACKNOWLEDGEMENTS.....	73
FUNDING	73
CONFLICTS OF INTEREST.....	73
REFERENCES.....	74
APPENDICES	85
Appendix I: Search term set	85
Appendix II: Search strategy.....	87
Appendix III: Roles and sub-roles of CHWs	102
Appendix IV: CHW Common Indicators	103
Appendix V: Table 2: Information about roles of CHWs in included papers	104
Appendix VI: PRISMA Checklist.....	111
Appendix VII: Supplemental Participant and CHW Characteristics	114

1 Lay summary

What is healthy ageing?

Healthy ageing is the process of preserving and bettering an individual's ability to perform basic daily activities, be independent, and enjoy life. Healthy ageing is essential for helping older people to live longer and healthier lives (1). Data shows that older people want to healthily age in their homes and communities for as long as possible (2).

What are community health worker (CHW) interventions?

A CHW is a public health worker who is often a lay member of the community and who shares ethnicity, language, socioeconomic status, and/or life experiences with the community they serve (24). A CHW intervention is a programme or initiative led by a CHW that aims to improve the health and well-being of individuals or local community populations.

What did the author want to find out?

Research in the past five years has demonstrated that CHWs can improve patient health outcomes and experiences of care (3)(4). This research also shows that CHWs have been a financial boon for health insurers delivering care to adults and children with limited income and resources (5). A small amount of the available research proposes that CHW interventions can positively impact older people with clinically complex conditions or those who are from ethnic minority populations (6)(7). However, CHWs' potential role in supporting healthy ageing in community for the older adult population is understudied. The author wanted to address this gap and understand what is known on this topic and where gaps in knowledge exist.

What did the author do?

The author searched six electronic databases and sources outside of traditional literature publishing channels for information on this topic. The author summarised what they found (i.e., the results) and categorized the information to improve the comparability of the results. The author also adapted and developed new diagrams to present neat summaries of the results and the author's findings.

What did the author find?

The author found thirteen research papers detailing studies that involved a range of older people (from 20 people in one study to 2,222 in another) with a diversity of diseases, conditions, and health and social needs. Ten of the studies were conducted in high-income countries worldwide and three were conducted in lower to upper middle-income countries. Most interventions included at least one in-person interaction, but the types of activities and assessments performed varied greatly. The longest study lasted three years.

Main results

The scoping review identified several potential roles for CHWs in facilitating and promoting healthy ageing in the community. CHWs may help to deliver more cohesive health and social care services and may support older people to not only meet their basic daily needs but also actively participate in their communities. CHWs represent a promising practice for enhancing older people's well-being – the ultimate purpose of healthy ageing.

What are the limitations of the evidence?

The author did not conduct risk of bias assessment; as such, the author could not evaluate the credibility or reliability of research findings.

2 Abstract

Background and objectives: Healthy ageing allows older people to experience well-being; community health workers (CHW) may have a role in supporting healthy ageing in community. Understanding what is known, and where gaps in knowledge exist, is important for advancing research on this topic.

Methods: A scoping review was undertaken to explore the question - *What community health worker interventions in any community setting (urban, suburban, and rural) with a focus on older people's (adults over age 65) well-being have been evaluated globally that include information about health outcomes, healthy equity, social connection, or health and social care service delivery?* Six databases (PubMed, Cochrane, Policy Commons, CINAHL, ASSIA, Embase, Global Index Medicus) and grey literature were searched for relevant sources. References were screened by two researchers to identify if they met inclusion criteria. Data were summarised as narratives, figures, and in tables.

Results: Thirteen papers met criteria for inclusion; eleven were primary studies with varied research designs and disparate diseases, conditions, and health and social needs studied. Ten of the studies were conducted in high-income countries worldwide with varied activities and assessments performed. Results suggest CHWs may have capacity to support healthy ageing in community for older people.

Conclusion: CHWs represent a promising practice for supporting healthy ageing. The review identified several potential roles for CHWs, and the evidence available may provide guidance on where CHWs can facilitate and promote healthy ageing in the community – and enable older people to not only meet their basic daily needs but also contribute to their communities. The author did not perform quality assessments on included papers so the credibility and

reliability of the findings is unknown. Further, the overall findings were developed on domains where an effect was reported but did not establish where an effect was not observed.

3 Background

3.1 Older people

The National Institute on Aging in the United States (US) describes older people as those age 65 or older. Most developed world countries similarly use this age to describe an older adult or elder person (8). Therefore, numeric age was selected as an objective measure of age for this review.

3.2 Healthy ageing

Healthy ageing, defined by the World Health Organization (WHO) as the process of “developing and maintaining functional ability” (9), is essential for helping people to live longer and healthier lives (1). This process requires unique consideration of an individual’s intrinsic physical and mental capacities, which are developed and maintained throughout their lifetime, and the structural and social contexts in which people and populations reside. Healthy ageing can be materialized through “more efficient and sustainable social [care] and health interventions” that can develop capacities, influence environments, and generate functional ability (10).

As individuals age, they experience reductions in their intrinsic capacity and functional ability (10). These changes, and the ill health, disability, and dependency they engender, increase individual need for health and social care. Given the older adult population is proportionately increasing in the US and estimated to make up 22 percent of the US population by 2040 (11), the consequent increased need for care will have significant implications for family and household structure, health workforce labour supply, health spending, and community behaviour (12). These changes will necessitate that the US

strengthen system capacity with urgency while facilitating increased access to high-quality and cost-effective health and social care services (“services”) at home and in communities where older adults reside and want to remain as they age (10)(13). Such a delivery model – focused on improving outcomes and quality of care, while also controlling for healthcare costs – is value-based (14) and represents an opportunity for providing longitudinal and personalized care in a way that older people have never before experienced in community.

Several factors influence the needs and expectations of older people, their caregivers, and policy-makers in receiving and delivering such care. Overwhelmingly, older adults want to age in place (15). To do so, they rely on the support of family caregivers who in 2023, provided nearly 36 billion hours of unpaid care, valued at \$600 billion (16). As the proportion of younger people in the population declines, fewer people will be available to deliver support to help older people remain in home as they age.

The Centers for Medicare and Medicaid Services (CMS), a federal agency with responsibilities for national health care programs (17), projects that average annual growth in national health expenditure (5.4%) will outpace average annual growth (4.6%) in Gross Domestic Product (GDP) between 2022-2031. This will result in an increase in the health spending share of GDP (18) and add further strain to the nation’s considerable budget deficits. Due to rising healthcare costs in the US per capita, it is also unlikely that most older adults will be able to independently finance their care into old age (19).

Primary care providers (PCPs), often individuals’ first point of contact with the health system, are integral to population health, health equity, and overall system efficiency (20). Yet, there is an insufficient supply of PCPs to ensure access, continuity, and comprehensiveness of care for older persons. (21). Provider shortages make it difficult for providers to think beyond their responsibilities in a single patient encounter to identify

elements of the wider system that may limit how well they can respond to individuals' needs. Shortages also hinder providers' awareness of community services, impeding their potential to connect older people with social care services and community resources (22). Therefore, the US healthcare system needs to build capacity for caring for the ageing population through means other than PCPs.

3.3 Community health workers

Community Health Workers (CHWs), also known as lay health workers, promotoras, among other terms globally (see Appendix I), have held an important role in primary healthcare and in public health in the US since the 1960s (23). In 2010, the US Department of Labor recognized “community health worker” as a standard job classification and in the same year, CHWs' essential work was underscored in the federal Patient Protection and Affordable Care Act (23). This review leverages the American Public Health Association's definition of a CHW, which describes CHWs as “a frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served. This trusting relationship enables the worker to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery” (24). Globally, it is estimated there are more than 5 million CHWs functioning in various roles (25). In contrast, there are approximately 67,000 CHWs working in the US today (26).

More than 10 years ago, in their commentary *Community Health Workers Can Be a Public Health Force for Change in the United States: Three Actions for a New Paradigm*, Balcazar *et al.* (2011) proposed strategies for utilising CHWs to improve community wellness and support systems change (27). Since then, there has been some progress made on Balcazar *et al.*'s (2011) proposed action steps:

- In 2016, the CHW Core Consensus Project (“C3 Project”) developed and disseminated a single set of ten roles and thirty-two sub-roles central to the CHW profession to “expand cohesion in the field” (23).
- In 2021, the CHW Common Indicators Project (“CI Project”) identified and recommended a set of evaluation indicators to systematically assess the impacts of CHWs’ work in a standardized way to increase the “integrity, sustainability, and viability of CHW programs” (28).
- In 2024, US Senator Bob Casey introduced the CHW Access Act to improve Medicare reimbursement for CHWs and increase access to services through CHWs in community (29).
- Under the 2024 Medicare physician fee schedule, community health integration services allow billing for some services provided by CHWs (30).

Research in the past five years has helped to demonstrate CHWs’ effectiveness. A study by Kangovi *et al.* (2020) found that a health system- and evidence-based CHW intervention designed to respond to the social determinants of health (SDoH) (i.e., non-medical factors that affect health outcomes) in adults insured through Medicaid¹ payers yielded an annual return of \$2.47 for every dollar invested (5). Additional studies have demonstrated CHWs’ capabilities in leading “...improvements across the “triple aim” of health care – improved population health, improved patient experience of care, and reduced costs – and hold promise for advancing healthy equity” (3)(4).

¹ In the United States, Medicaid is a government program that provides health insurance for adults and children with limited income and resources (31).

3.4 CHW interventions for healthy ageing in community

In May 2024, the Interagency Coordinating Committee (ICC) on Healthy Ageing and Age-Friendly Communities published a framework (“ICC framework”) for a National Plan on Ageing that sets out federal goals and objectives for supporting the well-being of older Americans (32). The framework outlines elements of healthy ageing to inform the development of a national plan to “advance healthy ageing and age-friendly communities” (32). However, the ICC framework does not provide an operating definition for healthy ageing, thus the author adopted the WHO’s definition.

As can be seen with the recent publication of the ICC framework, there is clear momentum in the US to support healthy ageing for older people and provide support to caregivers. Yet, despite recognition of CHWs’ unique roles and effectiveness, there is a paucity of understanding of CHWs’ potential role in supporting healthy ageing in community for the older adult population. This scoping review addresses this gap by mapping the state of knowledge on this topic.

The author felt that a scoping review was appropriate for achieving this aim given the topic’s expansive nature and the author’s wish to map the breadth of evidence available and identify further research gaps (33). An initial limited search of PROSPERO, PubMed, and the Cochrane Database of Systematic Reviews was undertaken to identify if any completed or in-progress reviews on this topic have been published. A small number of papers were discovered; however, these systematic reviews identified evidence demonstrating CHWs’ impact with clinically complex and ethnic minority older adults only and suggested further evidence on CHWs and their effects on older populations is necessary (34)(35).

Furthermore, given that both health equity and social connection impact healthy ageing by reducing the risk of premature mortality and influencing health-related behaviours

(36), the author explicitly sought out information about health equity in their search strategy and within included papers. Similarly, information about social connection – the interactions, relationships, roles, and sense of connection individuals, communities, or society may experience - was sought out.

4 Methods

The author carried out a scoping review in accordance with guidance from the Joanna Briggs Institute (37) and in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (see Appendix VI) (38). A protocol for the review was drafted following the same guidance and was registered prospectively with the Open Science Framework on 13 May 2024 (39). The review set out to answer the question: *What community health worker interventions in any community setting (urban, suburban, and rural) with a focus on older people's (adults over age 65) well-being have been evaluated globally that include information about health outcomes, healthy equity, social connection, or health and social care service delivery?* Its objectives were to:

1. capture the type and scope of evidence available (e.g., the specific aims, for which groups and for which conditions, diseases and/or needs CHWs were utilized, and the setting of care or service delivery) in included papers,
2. capture roles performed by CHWs in included papers,
3. capture information about services delivered in included papers,
4. capture the types of health outcomes studied in included papers,
5. capture whether health equity was considered in included papers,
6. capture whether CHWs influenced social connection in included papers,
7. summarise whether CHWs may support healthy ageing in included papers, and
8. ascertain areas for further research.

4.1 Inclusion criteria

Population

The population of interest was older people (adults over age 65) residing in community settings and receiving interventions delivered by CHWs with a clear focus on well-being. Papers focused on this population and that additionally included information on caregiver variables (e.g., health literacy, self-efficacy, or quality of life) were considered for inclusion.

The author utilized the “WHO Guideline on Health Policy and System Support to Optimize Community Health Worker Programmes” (40) to curate a search term set for CHW (see Appendix I). After reviewing the guideline, some terms were excluded as they did not pertain to the author’s study population.

Research not specifying the age(s) of included participants was excluded.

Concept

The author was interested in information about CHW interventions delivered to older people that supported healthy ageing, and thus enabled well-being (1). As the WHO definition of healthy ageing is itself a complex construct, the author took a deductive approach to the research, casting a wide net with the search strategy to identify all sources related to CHWs and older people. Sources needed to include information on health outcomes, health equity, social connection or service delivery that the author could use to map included papers to the healthy ageing domains (i.e., functional ability, intrinsic capacity, and environments), as described by the WHO, and identify evidence gaps. Studies that only focused on CHWs or older people were not included.

Context

The author considered studies exploring CHW interventions delivered to older people in urban, suburban, and rural areas in any geography. Interventions had to be community-

based. Community could refer to a neighbourhood where the interventions took place, a defined geographical area, or a defined physical location (e.g. homes, community centres, places of worship) so long as the target population and the intervention were located in the same setting (41).

The search strategy was not restricted by language; however, due to time constraints, the author did not plan to translate research not written in English. Ultimately, all studies included for full-text review were written in English.

Types of sources

The author considered experimental and quasi-experimental studies, including randomized controlled trials, non-randomized controlled trials, before and after studies and interrupted time-series studies. In addition, observational studies (including prospective and retrospective cohort studies, case-control studies, cross-sectional studies, case series, individual case reports and descriptive cross-sectional studies) were considered. Qualitative and mixed methods studies were also considered. Systematic reviews meeting the inclusion criteria were considered, depending on the research question. Grey literature and reports, discussion and commentary papers, theses/dissertations, books, and conference abstracts were considered.

4.3 Search strategy

The search strategy located published and unpublished research with no date limits applied. An initial limited search of PubMed was undertaken to identify articles on this topic. The text words contained in the titles and abstracts of relevant articles were used to develop a full search strategy for each database in consultation with an experienced medical librarian (N.R.) (see Appendix II). Databases searched on May 1, 2024 were: PubMed, CINAHL (The

Cumulative Index to Nursing and Allied Health Literature), Cochrane Central Register of Controlled Trials (Wiley), Embase (Ovid), ASSIA (Applied Social Sciences Index & Abstracts), Global Index Medicus, and Policy Commons. Reference lists of included papers were screened for additional relevant studies.

Additionally, the author conducted focused searches as suggested by Pollock et al. (2023) (42) and utilizing the Canadian Agency for Drugs and Technologies in Health ‘Grey Matters’ tool (43). The grey literature search also targeted key organisations identified through domain specific Google searches of .gov, .mil, .org and .net and through reviewing entities referenced in previously identified research. The websites of relevant organisations were examined with a condensed set of search terms. Initially, the search concentrated on national entities and expanded to regional and local ones as time permitted. Select global agencies and non-profit organizations dedicated to health and CHW programmes were also considered as time permitted (e.g. WHO, Community Health Impact Coalition² and PATH³). See further detail in Appendix II.

4.4 Screening

Following the search, all identified citations were collated and uploaded into Rayyan, an online platform that assists with managing references, where duplicates were removed and screening decisions were recorded. Initially, two researchers (S.S. and O.O.) independently reviewed titles and abstracts of 20% of citations against the inclusion criteria. As the researchers agreed on 99% of the screened citations, the remaining citations were screened by S.S. alone. The author leveraged the search and sorting features of Rayyan to perform targeted reviews of papers based on key terms. Potentially relevant papers were

² Community Health Impact Coalition comprises thousands of CHWs and dozens of global health organizations in low- and middle-income countries (44).

³ PATH is an international, nonprofit global health organization (45).

retrieved in full. 10% of full texts of selected citations were assessed in detail against the inclusion criteria by both researchers; as the researchers agreed on 100% of the screened full texts, the remaining 90% of full texts were screened by S.S. alone. Any disagreements arising between the reviewers at each stage were resolved through discussion and with guidance from a third reviewer (R.P.S.). The results of the search and the study inclusion process are presented in a PRISMA-ScR diagram (see figure 1) (38). Percent agreement among the researchers was calculated as the number of instances where researchers agreed divided by the total number of citations screened, multiplied by one hundred.

4.5 Data extraction

Data were extracted from included papers into an Excel spreadsheet, using a data extraction form developed for the study by the author based on the JBI Manual for Evidence Synthesis, Chapter 10: Scoping Reviews. Two researchers (S.S. and O.O) jointly charted the data for two papers, discussing the results. S.S. charted the remaining data alone. Data was abstracted on paper, study, population, CHW, and intervention characteristics (e.g., country of origin, study design, participant conditions or needs, CHW roles, and intervention duration and structure), main findings of the interventions, and studies' conceptual contributions. As critical appraisal is not a common component of a scoping review, it was not performed (46). However, strengths and limitations for each study as reported by the authors, among other details, were extracted to assist readers in judging the quality foundations of the research (47).

4.6 Data analysis and presentation

JBI Manual for Evidence Synthesis, Chap 10: Scoping Reviews notes that using 'principles of framework synthesis' is useful in conducting scoping reviews (46). The author considered the review's objectives and what reviewed papers contributed to each of these,

and then developed a narrative, tables, and figures leveraging frameworks detailed below to summarise what the included papers suggested in terms of the review question.

There is a large degree of heterogeneity among CHW interventions for older people. The level of reporting of interventions within included papers was also variable, making it difficult to present a neat summary of the different intervention components. Given this, the WHO conceptual models of healthy ageing and integrated care for older people (ICOPE) were used as conceptual frameworks to help analyse and organise data emerging from the scoping review. To that end, the author identified and mapped where CHW interventions delivered benefits against the healthy ageing domains. After data was extracted, both an existing (Fig. 2) and a novel (Fig. 3) evidence gap map were adapted and created respectively to present the evidence found in included papers. The ICOPE framework, which helps to “optimise intrinsic capacity and functional ability” by “shifting the way health services are managed and delivered” (48), was used to guide the author’s thinking and informed the presentation of results related to the characteristics of study interventions in Table 3.

To increase the comparability of CHWs’ roles across papers and ensure CHWs’ own voices about what is important to measure were captured, the author leveraged the C3 Project’s published work on CHW roles and the CI Project’s evaluation indicators as frameworks for presenting what included papers said about CHWs’ scope of practice (see Table 2 in Appendix V) and the outcomes delivered by CHW intervention (see Table 4). Due to time constraints and some indicators being less easily adapted to the context of secondary research, data was only extracted for a subset of the CI Project indicators. Appendix IV provides a complete listing of the CI Project indicators and those captured in this review.

The WHO has called for all health and social care settings to adopt and deliver integrated services to develop older people’s functional ability along a seamless continuum of

care (49). This evolution represents a paradigm shift in the goals and mechanisms of service delivery for older people. The WHO has developed a global repository of interventions, the WHO Universal Health Coverage (UHC) Compendium (“UHC compendium”), to assist nations in making this transition (50). Due to the changing nature and requirements of delivering services to older adults and CHWs’ understudied roles in this area, the author could not find a framework fit for purpose for presenting the characteristics of CHW interventions in included papers. How to deliver person-centred services for older people in community is a wicked problem (51) – and a global one. As such, the reviewer leveraged the UHC compendium as a framework for categorising interventions delivered in included papers. This organizational scheme is clinical by nature and draws on international disease and primary care classification systems. As CHWs are not clinical and both health and social care services were delivered in included papers, the UHC compendium only fit as an organizational scheme down to the “intervention category” level. Despite this limitation, this approach helped to increase the comparability of studies and may aide those looking for opportunities to deliver UHC and support healthy ageing for older people. Intervention categories based on the UHC Compendium healthy ageing programmatic area are listed in Table 3; the preceding “group” and “subgroup” categories are presented in Fig. 4.

5 Results

5.1 Summary characteristics of included papers

As reported in Figure 1, from 8272 references, 38 papers were read in full. A number of papers defined older people as adults < 65 years of age, and were thus excluded. Thirteen papers met criteria for inclusion (52)(53)(54)(55)(56)(57)(58)(59)(60)(61)(62)(63).

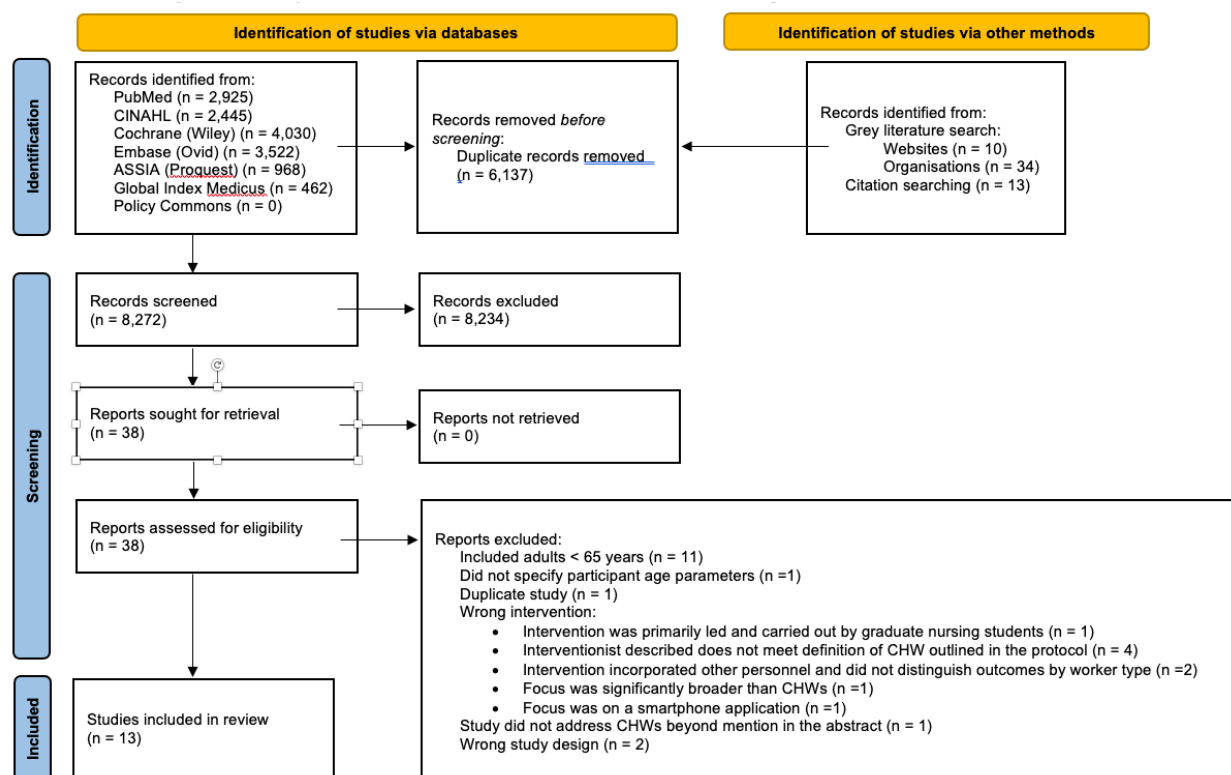


Fig. 1 PRISMA flow diagram.

The number of sampled participants in the included studies ranged from 20 to 2,222 and were all 65 years of age or older. When reported, all studies included male and female participants. Appendix VII includes further detail on participant demographics.

Five studies were based in urban areas in the United States, two in urban areas in Brazil, and one study in an urban area in Canada, Taiwan, and Japan respectively. Three papers studying the United Kingdom, New Zealand, and India were unclear about the

geographic setting. All studies reported the location in which the intervention was delivered with nine of thirteen studies taking place partially or fully in older people's homes. Included papers targeted specific populations, including older people with: dementia, osteoporosis, frailty, poor dietary quality, economic and social vulnerability and dependence, those categorized as low-income, minority, or otherwise underserved, and those with multimorbidity (see Table 1).

Most papers ($n=11$) focused on primary research and two papers focused on secondary research. The papers included a wide variety of research methodologies and study designs. Four studies were experimental or quasi-experimental.

A variety of interventions were studied to prioritize individual service delivery and preventive activities, such as behavioural activation to prevent cognitive and functional decline in black individuals with mild cognitive impairment (60). More than half of papers were guided by a theoretical framework to inform program design and research conduct. No papers produced novel theories.

Smith et al. (2019) planned for a systematic review; however, the authors were not able to identify any papers meeting their study eligibility criteria so further data from this paper was not extracted.

TABLE 1. Summary characteristics of included papers.

First author (year)	Setting	Priority population, health, or social issue	Study design	Comparator	Study aim	Theoretical framework applied	Conceptual contributions	Major themes
Primary research								
Han et al. (2021)	United States (Urban) Delivered in homes and community location(s)	Dementia among Korean elders with a Clinical Dementia Rating of ≥ 1 and their caregivers residing in Baltimore-Washington Metropolitan Area	Pre-post, one-group	†	To test the feasibility and acceptability of a dementia literacy intervention for Korean American elders with dementia and their caregivers	von Wagner's health literacy model (64)	• CHW-led literacy interventions for older adults and their caregivers may be a way to develop older people's cognitive capacity, increase their support and relationships, and support their ability to learn, grow, and make decisions	• Responsibility for healthy ageing • System responsiveness
Hodges et al. (2023)	United States (Urban) Delivered in homes, clinic/healthcare, and community location(s)	Low-income, minority or otherwise underserved older adults recruited from HealthNet, a network of seven Federally Qualified Health Centers (FQHC), designated outpatient clinics that conventionally provide health care services for low-income patients	Grounded theory	†	To analyse the experiences of older people participating in a geriatric-focused CHW support program to understand how CHWs may enhance older people's well-being and care delivery and to	†	• Employing CHWs to provide education, screen for geriatric-related risk factors, assist with medication access, deliver social support, and make	• Dependency • Knowledge and empowerment • Status quo • System responsiveness • Unsustainability

		and/or that are established in medically underserved areas, in the Indianapolis area			further understand how COVID-19 affected the needs and well-being of older adults		resources referrals for older adults may be a way to develop older people's psychological capacity, increase their support and relationships, affect available services, systems, and policies, and support their abilities to meet basic needs, be mobile, and build and maintain relationships	
Jacob et al. (2006)	India Delivered in homes	Dementia among individuals who consented to study participation, living in the Kaniyambadi block in the Vellore district of Tamil Nadu	Instrumental case study	†	To evaluate the efficacy of employing CHWs in the diagnosis of dementia in a large community sample	†	Recruiting CHWs to diagnosis dementia in the community may not impact older people's intrinsic capacities, environments, or functional abilities	Unsustainability

Kloseck et al. (2017)	Canada (Urban) Delivered in an independent living location	Osteoporosis among individuals living in a naturally occurring retirement community in Ontario	RCT	Control group receiving usual care	To test whether a participatory community development approach is effective to improve the diagnosis and management of osteoporosis	Green and Kreuter's model of health promotion (65)	• Recruiting retirees as peer educators to provide education, assist with completion of a risk assessment tool, and deliver personalized action plans for older adults may be a way to develop older adults' vitality capacity, increase their support and relationships, improve attitudes, and support their abilities to build and maintain relationships and learn, grow, and make decisions	• Knowledge and empowerment • Responsibility for healthy ageing • Unsustainability
Litzelman et al. (2017)	United States (Urban) Delivered in homes	Chronic conditions, including MCI, among Medicare beneficiaries with an International Classification of	Pre-post observational analysis, Mixed methods	†	To evaluate an advance care planning (ACP) intervention to better meet the	†	• Employing care coordinator assistants (CCAs) to	• Knowledge and empowerment • Unsustainability

		Diseases, Ninth Revision (ICD-9) code of depression or dementia, who had at least one visit within the past 2 years to a primary care practice			needs and priorities of older persons		screen patients for dementia or depression and then proceed to visit participants in their homes to implement advanced care planning, provide referrals to other health services, deliver informal counselling, and perform assessments to understand individuals' lives, values, priorities and social contexts may be a way to improve attitudes, affect services, systems, and policies, and support older people's ability to learn, grow, and make decisions	
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Murayama et al. (2020)	Japan (Urban) Delivered in community location(s)	Dietary variety among individuals living in 4 districts in Hikone City with a dietary variety score (DVS) of < 3 on a scale of 0-10	Non-RCT	An immediate intervention group (IIG) and delayed intervention group (DIG) were created with the intervention crossing over from IIG to DIG halfway through the study	To test the efficacy of a CHW-based intervention to improve dietary habits among community-dwelling older people in Japan	†	Engaging voluntary CHWs to provide education and to support group discussion about dietary habits and variety may be a way to develop older people's vitality capacity, affect services, systems, and policies, improve attitudes, and support older people's abilities to meet basic needs and to learn, grow, and make decisions	- Knowledge and empowerment - Responsibility for healthy ageing - System responsiveness
Neto et al. (2021)	Brazil (Urban) Delivered in homes and clinic/healthcare location(s)	CHWs employed in 3 community primary care units (PCUs) located in neighbourhoods containing the largest number of older people identified as being economically and	Feasibility study	†	To assess the validity of a short training intervention to increase the capacity of CHWs to understand and be responsive to the	Ritter et al. (2014) methodology for participatory and reflective training activities (66)	Training CHWs to increase their competence in and responsiveness to the health and social needs of older	- System responsiveness - Unsustainability

		socially vulnerable and dependent			health and social care needs of dependent older people in deprived urban neighbourhoods		people may be a way to affect services, systems, and policies for older people	
Oetzel et al. (2024)	New Zealand Delivered in community location(s)	Health and social inequities among Māori (Indigenous) elders	Pre-post, clustered staggered design	†	To identify the effect on outcomes, resources received, and the cost effectiveness of a peer education programme to assist kaumātua (elders) in addressing health and social needs	He Pikinga Waiora (Enhancing Wellbeing) Implementation Framework (67) Social learning theory (68) Theory of reasoned action (69) Diffusion of innovation theory (70)	• Voluntary peer education programmes to assist elders during life transitions with addressing their health and social needs may be a way to develop older people's vitality and psychological capacities, affect services, systems, and policies, improve attitudes, increase support and relationships, and support older people's abilities to build and maintain relationships, learn, grow,	• Status quo • System responsiveness • Unsustainability

							and make decisions, meet their basic needs, and contribute	
Ramos-Cerqueira et al. (2005)	Brazil (Urban) Delivered in homes	Dementia among older adults living in Piraju	Case study	†	To determine the efficacy of applying a case finding procedure for the identification of dementia cases in the community carried out by CHWs	Dementia case-finding procedure developed by the 10/66 Dementia Research Group (71)	• Employing CHWs to perform a case-finding procedure may be a way to affect services, systems, and policies for older people	• Knowledge and empowerment • System responsiveness
Rovner et al. (2018)	United States (Urban) Delivered in homes	Dementia among Black individuals with amnesic mild cognitive impairment (MCI) in Philadelphia, Pennsylvania	RCT	Supportive therapy (an attention control treatment)	To determine whether behavioural activation is effective in preventing cognitive and functional decline in black individuals with MCI	Health belief model (72)	• Engaging CHWs to deliver behavioural activation may be a way to develop older people's cognitive capacity and support their ability to learn, grow, and make decisions	• System responsiveness • Unsustainability
Wang et al. (2013)	Taiwan (Rural) Delivered in homes	History of at least two chronic illnesses among community-dwelling elderly adults living in 8 villages covered by a single Primary Health Centre	Pilot Study	Control group receiving routine care	To evaluate the impact of CHWs on medication safety knowledge, attitudes, and behaviours	Strategies for developing a volunteer coaching program (73)	• Engaging voluntary coaches to improve older people's knowledge, attitudes, and	• Knowledge and empowerment • Unsustainability

		in a remote southern area with over 1000 elderly residents					behaviours related to medication safety may be a way to develop older people's cognitive capacity, affect services, systems, and policies, and support their abilities to meet basic needs and to learn, grow, and make decisions	
Secondary research								
Smith et al. (2019)	United Kingdom Delivered in community location(s)	Frailty among community-dwelling older people	Systematic review	†	To determine the current evidence on the effectiveness of social prescribing programmes to delay or reduce frailty in frail older adults living in the community	†	• This was an empty review; as such, this paper did not provide insight on older people, CHWs, and healthy ageing	†
Steinman et al. (2023)	United States (Urban) Delivered in homes	Older Spanish-speaking Mexican-American immigrants living in poverty with multiple chronic conditions and inequitable access to	Case study	†	To understand adaptations to fit local context, acceptability, feasibility, fidelity, clinical effectiveness, and	Program to Encourage Active, Rewarding Lives (PEARLS) (74) Model for	• Employing CHWs to conducted home visits and telephone calls, screen for depression,	• Status quo • System responsiveness • Unsustainability

		quality health care for depression			contextual determinants of implementation success or failure of an intervention delivered by CHWs to improve access to quality depression care for older Latino adults	adaptation design and impact (MADI) (75) expanded Framework for reporting adaptations and modifications to evidence-based interventions (FRAME)(76) Cultural influences on mental health framework (77) Heuristic framework for cultural adaptations of interventions (78) Consolidated framework for implementation research (CFIR) (79) adapted for LMIC (80) Implementation outcomes framework (81)	provide informal counselling, make referrals, and assess individuals' values and preferences may be a way to develop older people's psychological capacity, increase their support and relationships, affect services, systems, and policies, and support older people's abilities to meet basic needs and learn, grow, and make decisions	
RCT = randomized controlled trial † = could not determine, not reported, or not applicable								

5.2 Information about CHW roles

Information about CHW roles is captured in Table 2 in Appendix V and narratively summarised below.

Title, recruitment, and employment

Seven papers referred to the interventionist as CHW; remaining papers reflected a diversity of titles. Most studies employed CHWs, while the remainder had voluntary positions. CHWs were employed by community-based organizations (CBO), health systems/institutions, or through public health departments. Notably, one study used retirees and two did not comment on the employment status of CHWs.

Training and supervision

The majority of studies had a requirement that CHWs complete a core competency-based training and most papers provided details of the training received. Clear evidence of supervision was found in half of papers with few providing details of supervision received. Only two papers reported CHW feedback on the quality of training and supervision. See further detail in Appendix VII.

Functions of CHWs

All standardized CHW roles and sub-roles are listed in Fig. 5 (see Appendix III). In all papers, at least one standardized CHW role was exercised and most papers exercised four to six roles. Across papers, the role that appeared most frequently was *providing coaching and social support*, followed by *providing culturally appropriate health education and information, building individual and community capacity, and care coordination, case*

management, and system navigation. CHWs' sub-roles are also recorded in Table 2 and further elucidate the standardized actions and activities of CHWs in included papers.

Team integration

The author found little evidence that CHWs were fully integrated into multidisciplinary teams or that their roles were well understood by those teams. In one paper, CHWs' attempts to establish contact with clinical providers went unacknowledged and unreciprocated.

System integration

The most common models of CHW integration with public health or primary care were community-clinical linkages and employment within healthcare, in which CHWs met regularly with multidisciplinary teams to review individual patient cases, link participants to primary, behavioural, and/or social care service professionals, and/or make referrals. However, not all partnerships were formal. In five studies, community organizations and academic institutions collaborated to deliver value to the community and in one-third of studies, multiple integration models were leveraged. Notably, two papers did not report on system integration.

Creating and influencing research and health-promoting decisions

In many papers, CHWs were involved in just some stages of the research; in just two papers, they were more extensively involved. In a small number of papers, decision-makers actively sought CHWs' opinions and participation. There was no evidence of CHWs engaging in policy-making.

5.3 Characteristics of interventions delivered

Duration and structure

Interventions ranged in duration from a handful of in-person and phone-based conversations with participants and brief (e.g., 2-hour) training sessions with CHWs to a 3-year study period. Intervention structures varied with most including at least one in-person component or session. The methods of intervention were similarly diverse and included educational and counselling sessions (59)(55)(54)(58)(82)(53), risk and screening assessments (54)(55)(82)(83)(53), behavioural activation activities (84), group discussions and workshops (56), training activities (83), case finding procedures (62)(63), advanced care planning discussions (82), resource referrals (59)(55)(82)(53) (58) and medication reviews and assistance (55)(57). The ratio of CHWs to participants also greatly varied with one paper utilizing one CHW per two to three participants on average (56) and another paper utilizing one CHW per one hundred and seventy-nine participants on average (55).

Co-production of health

Batalden et al. (2016) and Elwyn et al. (2020) have described co-coproduction of health as ‘the interdependent work of users and professionals who are creating, designing, producing, delivering, assessing, and evaluating the relationships and actions that contribute to the health of individuals and populations’ (85)(86). The WHO asserts that older people can be empowered to evolve from being service users (being consulted and giving feedback) to coproducers (being engaged in decision-making and controlling the direction and prioritization of service delivery) (87). In three studies, participants were partners and decision-makers in service planning and provision alongside CHWs. Oetzel et al. (2024) studied a co-designed and participatory program so that participants would feel invested in the relationship(s) with tuakana and find their own inner strength(s) (58). Rovner et al. (2018)

utilized a values-based approach to co-identify treatment goals and co-develop treatment plans with older people (84). In the study by Hodges et al. (2023), CHWs enabled and supported participant-directed conversations and care planning (55). In five of twelve studies, a participatory approach to intervention development involving CHWs, older people, and their caregivers was used (59)(58)(56)(83)(57).

Only four papers captured participants' and CHWs' experiences of the interventions (59)(82)(58)(53). This feedback showed that participants found CHWs' roles to be useful in addressing access barriers and uncovering patient preferences and values. It also revealed that CHWs built strong trust and rapport with underserved older people.

Service delivery

Considering objective three, half of studied interventions delivered secondary preventive measures (59)(55) (62)(63)(82)(83) and one-third focused on primary prevention (58)(56)(84)(57), with most papers interested in participant-level outcomes. The remaining interventions focused on a mixture of primary, secondary, and tertiary preventive measures (54)(53). No studies were identified that used only tertiary preventive measures.

As shown in Table 3, half of the studies were also interested in social care service delivery with a diversity of services provided. In four studies, CHWs delivered social support and in two studies each, CHWs delivered referrals to food assistance programs, transportation and access, and housing assistance and access services, and provided general community resource information and referral services.

TABLE 3. Information about interventions delivered.

First author (year)	Intervention category	Ratio of CHWs to participants	Intervention duration and structure	Primary care focus areas	Social care services delivered	Experiences of the intervention
Han et al. (2021)	• Cognitive capacity in older people • Neurodegenerative disorders	1:20	Intervention consisted of 1 hour of dementia literacy education followed by monthly phone counselling sessions and navigation assistance for 3 months by a trained bilingual CHW. Intervention targeted participants and their caregivers. Navigation included referrals and linkages to other health services.	Detection	• Assistance with health insurance • Referral to adult day cares • Referral to caregiver resource(s)	Participants appreciated the ongoing support provided by the CHW, noting the CHW supported completion of formal dementia evaluation. Several caregivers shared feedback about the usefulness of CHW navigation to address access barriers.
Hodges et al. (2023)	• Cognitive capacity in older people • Depression • First access, continuity and coordination • Mobility in older people • Social support for older people	2:358	The Geriatrics Care program employed CHWs to provide education and resources referrals for older adults recruited from a network of 7 FQHCs. 793 phone calls to participants were made over a 16-month period during which CHWs screened participants for falls, depression, and cognitive impairment, provided educational information, referred participants to community resources, assisted patients with logistics of complex procedures (e.g., moving), helped with medication access (e.g., needing assistance with medication refills), and provided social support. CHWs had an avg. of 4.89 phone calls with each participant.	Detection	• Information and referral services (general) • Referral to home-delivered meal programs • Referral to food assistance programs • Referral to transportation and access • Referral to personal mobility and transportation devices • Referral to housing assistance and access services • Social support	†
Jacob et al. (2006)	• Cognitive capacity in older people	4:1000	CHWs trained for 2+ hours to identify probable cases of dementia and then	Detection Diagnosis	†	†

	• First access, continuity and coordination		were asked to informally classify older people in their regions as probably cases and noncases of dementia. CHWs contacted and obtained information from other health workers and informants in the community to develop a final list of probable cases of dementia. Final assessment of individuals on the list was performed by research workers trained in the use of a specific set of instruments.			
Kloseck et al. (2017)	• First access, continuity and coordination • Healthy nutrition • Mechanical injury • Mobility in older people • Noninflammatory spinal disorders	6:105	6 peer educators delivered monthly 2-hour education programs in pairs to groups of participants. This consisted of peer-led presentations and helping participants to fill out a portion of a risk assessment tool and personalized action plan. Peer educators spent 6 months with the intervention group performing risk assessments, encouraging visits to participants' physicians, and ensuring compliance with physician treatment recommendations.	Promotion Prevention Detection Diagnosis Treatment Management	†	†
Litzelman et al. (2017)	• First access, continuity and coordination • Palliative care	20:818	Care coordinator assistants (CCAs) were hired to serve as the primary link between patients, their caregivers, and the clinical team. Over the one-year study, CCAs conducted an initial assessment to screen participants for a diagnosis of dementia or depression and then proceeded to visit participants in their homes to implement ACP. CCAs supported referrals and linkages to other health services, provided informal counselling, and performed	Detection Diagnosis	• Social support • Support with or education on advanced care planning	Semi-structured interviews with patients were conducted to solicit patients' perspectives on the acceptability and relevance of the CCA's services and explore patients' overarching experiences with the CCA. Participants indicated the CCA conversations about ACP helped them to talk openly about and write down their preferences and to organize their thoughts. CCAs expressed that the ACP training

			assessments to understand individuals' lives, values, priorities and social contexts. The median number of participants seen by each CCA was 90 (range: 83-103). The average # of home visits for each participant was 3.4; of the 2,746 home visits completed during the study, 86.7% (2,382) were conducted by the CCA.			changed their perceptions of the importance of ACP work.
Murayama et al. (2020)	• Healthy nutrition	37:84	Participants received a free biweekly four-session program at a local community centre of 120 minutes/session for 2 months. Sessions focused on improving dietary habits through "drama-style lectures" about the function of nutrition and dietary variety, group discussion about dietary and cooking successes and failures, tasting of dishes with a variety of foods cooked by CHWs, and take-home activities/checklists to help participants understand their own food intake.	Promotion Prevention	†	†
Neto et al. (2021)	• First access, continuity and coordination • Healthy nutrition • Mechanical injury • Mobility in older people • Social support for older people • Violence against older people	N/A	Classroom-based component of CHW training consisted of 7 half-day sessions led by doctors and nurses with specialist background in gerontology and geriatrics. 12 hours of practical training consisted of home visits to eligible participants to screen for losses in intrinsic capacity and to assess social determinants of health.	Detection	• Assessment of needs for social care services • Home safety assessments	CHWs' evaluations of the training program were "unanimously positive in terms of the usefulness of both the class-based sessions and the subsequent home visits" (83).

Oetzel et al. (2024)	• Anxiety • First access, continuity and coordination • Depression • Social support for older people	21:86	A culture-centred ‘tuakana–teina’ (elder sibling–younger sibling) peer support education programme designed to help kaumātua support other kaumātua experiencing transitions in later life. Tuakana (peer educators) had up to six conversations each with up to six teina (peer learners) over a roughly six-month period and shared information related to social and health services. Tuakana performed assessments to understand individuals' lives, values, priorities and social contexts and sought to support teina's physical, mental, and social health and well-being.	Promotion	• Information and referral services (general) • Referral to community activities • Referral to group activities • Referral to a program or service to improve interpersonal relations • Referral to a program or service to increase the number of social relationships • Referral to a program or service to increase social inclusion • Referral to a program or service to improve social participation • Social support	†
Ramos-Cerqueira et al. (2005)	• Cognitive capacity in older people • First access, continuity and coordination	25:2,222	A dementia case-finding procedure, following the procedure undertaken in India by Jacob et al. (2006) (62), was carried out by CHWs to identify probably cases of dementia in the community.	Detection Diagnosis	†	†

Rovner et al. (2018)	• Cognitive capacity in older people	Could not calculate	Single-centre, single-masked, and attention-controlled RCT. 221 participants were randomized to behavioural activation, which aimed to increase cognitive, physical, and social activity through personalized goal setting and action plans to reinforce the practice of healthy activities, or supportive therapy, an attention to control treatment. Behavioural activation and supportive therapy consisted of 5 in-home 6-minute treatment sessions over 4 months and 6 in-home 60-minute follow-up maintenance sessions over the next 20 months. Race-concordant CHWs recruited the sample, delivered the interventions, and conducted clinical assessments masked to treatment assignment. CHWs also performed assessments to understand individuals' lives, values, priorities and social contexts.	Prevention	†	†
Steinman et al. (2023)	• Depression • First access, continuity and coordination • Promotive and preventive mental health services • Social support for older people	1:76	CHWs were integrated into a mental health team that included Psychiatric Consultants and licensed clinical social workers (LCSWs) to perform participant outreach between 2017-2020. CHWs conducted home visits and telephone calls in which they screened for depression, provided emotional and problem-solving support, made referrals and linkages to other health services, provided informal counselling, performed assessments to understand individuals' lives, values, priorities and social contexts, delivered food,	Promotion Prevention Detection Treatment Management	• Assistance with health insurance • Referral to food assistance programs • Referral to transportation and access • Referral to housing assistance and access services • Referral to home repairs	Participants, providers and the organization highlighted strong trust and rapport that the CHWs had with older Latino adults who have been underserved by other care systems. CHWs tailored their support for older Latina women and older Latino men to fit/meet their needs. Most participants were very satisfied; however, those with lower motivation and who were not ready to change reported lower acceptability.

			and connected participants to community resources. The study prescribed 6 to 8 home visits and 3 follow up calls per participant; each participant had average (SD) 9.8 (2) contacts (mean (SD) 6.6 (2.1) home visits and 2.9 (0.9) phone visits).		and modifications • Referral to homemaker and chore services • Referral to financial services • Referral to legal services • Social support	
Wang et al. (2013)	• First access, continuity and coordination	11:62	Volunteers had an initial phone call with intervention participants and then visited participants 3 times in their homes, in addition to performing phone call reminders over 2 months. An individualized Medication Safety Guide (MSG) was provided by the volunteer during the first home visit. This was reviewed in detail using teach-back. Medications were reviewed with the participant and reminder stickers regarding schedule, shape, and number of pills were applied to medication container. At second and third visits, the volunteer used the show-me method to review medications including colour, shape, count, and schedule and encouraged adherence.	Promotion	†	†
† = could not determine or not reported						

5.4 Information about outcomes

Table 4 presents the main findings of included papers as well as papers' data collection methods and, (when reported) papers' strengths and limitations.

All but three studies had both primary and secondary outcomes of interest, and a diversity of outcome types were examined. Most papers studied clinically or medically related health outcomes ($n=10$). A subset of those papers additionally studied non-medical social needs ($n=4$) and non-medical drivers of health ($n=1$) (58) (i.e., the conditions in the social and structural environments that people live within that affect a range of health risks and outcomes). One study considered non-medical health-related social needs only (55).

Care-seeking behaviour, such as receiving assessment or screening for dementia, was measured in three papers. One found that CHW intervention increased referrals to medical services for screening (59). Another similarly reported improvement in the number of participants obtaining an assessment for osteoporosis (54). The third reported a reduction in urgent care utilization and hospitalizations. Care practices, for self-care or self-management or by a caregiver, were measured in three papers, which found improved practices related to diet, medication safety, and supplement intake (56)(57)(54).

Five papers examined knowledge and attitudes. Kloseck et al. (2017) found minimal change in participants' knowledge related to osteoporosis (54). Murayama et al. (2020) found a significant change in diet-related knowledge between crossover groups but an insignificant overall change in knowledge throughout the study period (56). Neto et al. (2021) found that CHW training increased CHWs' perceived knowledge to meet the needs of participants and their caregivers (83). Wang et al. (2013) found medication safety knowledge scores were

higher in the intervention group after two months (57), and Steinman et al. (2023) found that participants changed their attitudes and beliefs contributing to their depression (53).

While the community was a key unit of practice in all papers, no papers measured community participation in or accountability for outcomes of older people. Surprisingly, no papers measured older person-caregiver dyad dynamics or communication between them, but one study measured caregiver outcomes (59).

Papers measuring individual-level outcomes that suggested an impact are denoted in the coverage maps (Figs. 2 and 3). Few studies examined how CHW intervention could affect outcomes at both the participant and institutional/program level. One of these papers found that CHW intervention improved reliability of resource access for patients at clinics serving low-income older adults (55). Two of them measured CHWs' effectiveness at detecting and diagnosing dementia in community and reported mixed results, suggesting CHWs may not be effective in all contexts (62)(63).

Notably, only one paper reported the total cost of the programme delivered (58).

Two papers measured participants' satisfaction with services delivered and found that interventions were highly satisfactory to caregivers (59) and improved participants' health-related quality of life and life satisfaction (58). Participant empowerment was a self-reported outcome in four papers and is detailed in Table 4 (59)(58)(82)(53).

All papers' findings were relevant to the sustainable development goals (SDG); the most commonly applicable SDG was 3.4 with the goal to reduce premature mortality from non-communicable diseases (88). As "what gets measured gets managed", collecting this data can help depict where CHWs support progress towards the SDGs and encourage further progress.

TABLE 4. Information outcomes in included papers.

First author (year)	Primary and secondary outcomes of interest	Main findings	Data collection method	Reported study strengths	Reported study limitations	SDG
Han et al. (2021)	Primary: linkage to medical services for dementia evaluation (primary or specialty care evaluation for cognitive impairment) Secondary*: caregiver psychosocial variables (dementia literacy, social support, self-efficacy, and depression) and quality of life	Three of the elders (30% of participants) were linked to medical services for dementia. All caregivers reported that they would recommend the program with an overall satisfaction of 9.7 on a 1–10-point scale. The effect sizes for caregiver outcomes ranged from 0.4 to 0.7 in absolute value. The intervention was determined to be highly feasible and acceptable with a 100% study retention rate over the study period. Self-reported empowerment: Participants felt they had more knowledge and skills for making choices since starting to work with a CHW as well as more access to resources.	A trained bilingual research assistant collected data at baseline and at 12 weeks through face-to-face interviews at a community location. Caregivers who completed the study were invited to participate in a post-intervention interview to share experiences. Linkage to medical services was verified by a medical records review.	†	There was no control group, and the study sample was a small convenience sample so generalizability of the study findings is limited. The population sample included Korean Americans elders only. The short-term follow up period of 12 weeks did not allow the study team to capture the full impact of some of the navigational assistance (e.g., processing insurance applications) on linkage to care.	3.4
Hodges et al. (2023)	Primary: CHW impact on care delivery for participants Secondary: effects of COVID-19 on social and emotional needs and well-being of older adults	CHWs can fill gaps in support left by family support structures and the healthcare system, allowing for reliable resource access while lessening caregiver burden. Self-reported empowerment: †	Data was collected from the open-text fields of the database used to record screening data, patient education, and resource referrals made; narrative entries about participant-centred discussions that took place during each participant-CHW encounter were identified prior to	Participants came from several different FQHCs which "provided the study with a diverse group of participants" (55). The qualitative data repository "provided a unique perspective based on the CHW's scope of practice and role in the care continuum" (55).	Study was conducted within a single health system, limiting generalizability. All data was collected over the phone due to COVID-19 restrictions; this may have also limited the data gathered and the assistance that could be provided. Notes for the qualitative synthesis	3.4

			extraction and analyses being performed.		conducted reflected "CHWs' interpretation of the older adults' experience" (55).	
Jacob et al. (2006)	Primary: accurate diagnosis of dementia at the community level	Researchers reported that, "informal screening by CHWs resulted in low sensitivity and positive predictive values. Screening strategies in situations of low prevalence are not effective" (62). Self-reported empowerment: †	Research workers, trained in the use of study instruments, evaluated participants and their caregivers in their homes.	†	The training program for CHWs was very brief in duration and the screening and nomination method for identifying cases of possible dementia was informal. The prevalence of dementia in the study population was low, "resulting in poor positive predictive value" (62).	3.4
Kloseck et al. (2017)	Primary: change in osteoporosis behaviour (obtaining a bone mineral density (BMD) assessment, discussing risk profile/BMD with a physician, and receiving treatment recommendations). All components had to be met to achieve the measured outcome Secondary: improvement in knowledge related to osteoporosis	73% of intervention group compared to only 30% of control group achieved a successful outcome. There was an increase in the number of intervention group participants taking Vitamin D and an improvement in the number of participants taking an adequate dose of Vitamin D. However, there was minimal change in pre-post knowledge in the intervention group and a negative change in the control group after 6 months, but this difference was not significant. Self-reported empowerment: †	Participants submitted data including demographic, risk, and knowledge information through completion of a knowledge test. Peer educators collected data on participant completion of the risk assessment tool and action plan, BMD scores, fracture risk stratification, recommended treatment adherence, recommended dietary changes adherence, calcium/vitamin D supplementation with dosage, lifestyle changes, and need for future BMD assessment.	†	†	3.4

Litzelman et al. (2017)	Primary: number of ACP discussions had with older people Secondary*: health care utilization outcomes (e.g., emergency department and inpatient utilization rates in the year subsequent to the intervention)	Older people with chronic diseases, including MCI, are able to engage in ACP conversations with CHWs in their homes. Having such an ACP conversation is "associated with significant reduction in seeking urgent health care and in hospitalizations" (82). CCAs documented at least one discussion about ACP with 47.9% (392 of 818) of eligible participants in the electronic health record (EHR). Of the 392 participants with documentation of ACP discussion, 95.9% had discussed a healthcare representative (HCR), 64% had a HCR form signed, 22.7% had their goals of living recorded, 18.4% had discussed a living will, and 7.4% had discussed artificial nutrition preferences. Self-reported empowerment: Participants felt more able to make choices about their life since they started to work with a CHW. Participants also felt more able to speak up for themselves.	CCAs documented patient preferences, HCRs, and referrals made to support completion of other ACP documents in the ACP EHR fields. Secondary outcomes measures were collected from the state's Health Information Exchange.	†	Clinical program outcomes were reported using a pre-post design vs a RCT. Generalizability of the findings is limited due to the study population including only a subset of the total possible eligible population served by the health systems affiliated with the academic health centre. Due to the complexity of the intervention delivered, increased documentation of ACP discussions and decreased health utilization outcomes reported could not be attributed to any one aspect of the intervention.	3.4
Murayama et al. (2020)	Primary*: dietary variety survey (DVS) score on a 10-point rating scale	In IIG, DVS increased after intervention at beginning (T1) and remained stable after the end of the intervention (T2) to	Data were collected from a brief-type self-administered questionnaire. Study did not specify when or by whom	CHWs were able to modify the particular program based on characteristics, culture,	A nonrandomized study design was used. Carryover effects were only examined in IIG	3.4

	Secondary: diet-related knowledge, self-efficacy and behaviours, physical measurements as well as health competence and sense of belonging to the neighbourhood	the end of study (T3). In DIG, there was no score changed between T1 and T2 but scores increased after onset of the intervention at T2 until T3. DVS score change was reported as significant between T1 and T2 between groups but overall score change throughout the study period was not statistically significant. Similar results were seen in diet-related knowledge, self-efficacy, PHCS, and behaviours except for one behaviour measure, "I consume an appropriate amount of food" (56). Fibre intake changed significantly from baseline in DIG. Systolic blood pressure and sense of belonging did not change for either group. Self-reported empowerment: †	BMI and systolic blood pressure were collected.	and customs of each district. Compared to intervention delivered by health professionals, including dieticians, effect size on DVS was greater in the CHW intervention.	group. A short follow-up period was employed. Low response rates to the initial screening survey led to possible selection bias. Study was limited to single municipality, leading to limited generalizability.	
Neto et al. (2021)	Primary: CHWs' knowledge and skills related to the needs of care-dependent older people Secondary: CHWs' capacity to use a screening tool of geriatric risk factors in a home-based setting	The study demonstrated the feasibility of developing a training program to improve CHWs' perceived knowledge and capacity in meeting the needs of dependent older people and their caregivers. Further, CHWs were able to conduct home visits and screen older people for vulnerability risk factors. Self-reported empowerment: †	Data were collected while planning the intervention (e.g., CHW self-evaluation), applying the practical element of the intervention (e.g., CHW application of the screening tool to identify specific risk factors in older people at home and while assessing CHWs' views about the effects the intervention had on their knowledge of	Per the researchers, "the set of available data provides insights about the training intervention process and to a lesser extent, its outcomes. This process evaluation can help to assess the fidelity of implementation of the training intervention and the degree to which it may be replicated" (83).	The study design was not a systematic evaluation developed a priori. Due to COVID-19, pre-planned interviews with CHWs and the trainers could not be completed formerly. The informal discussions that resulted may have been impacted by recall bias and not be reliable.	3.4 3.8 10.2

			specific issues. Brief structured interviews were conducted by the trainers with CHWs following the training intervention. 3 months after completion of the training, an additional CHW self-evaluation was conducted that re-evaluated the initial assessment items in addition to soliciting CHWs' opinions of the training, their perceptions of how it affected their related competencies, and the areas they felt required further training.		Small-scale pilot meant limited amounts of data were generated, and the study did not constitute a formal impact evaluation. Positive learning outcomes may have been biased by a desire to "please those responsible for the training program" (83).	
Oetzel et al. (2024)	Primary*: • Hauora-mental and physical wellbeing • Hauora-spiritual wellbeing • Hauora-health services • Hauora-social wellbeing • Hauora-cultural wellbeing • Mana motuhake-Autonomy • Mana motuhake-safety • Mana motuhake-general satisfaction • Mana motuhake-economic wellbeing Secondary:	Analysis revealed improvements in health-related quality of life, help with daily tasks, life satisfaction, paying bills and housing problems. Qualitative results suggested the programme impacted mana motuhake and hauora through providing intangible and tangible resources. Cost-effectiveness analysis showed that the intervention was cost effective, with a cost per QALY substantially below the conventional threshold of three times gross domestic product per capita. Self-reported empowerment: Participants felt more self-	There were three data collection points with variations for the two groups clustered by provider. In the first group, data was collected at baseline, post-conversations, and then two months after the second evaluation. For group two, data was collected at baseline, approximately two months after initial survey (but before their programme), and post conversations. The survey assessment was completed using a paper-pencil form and included health and mana motuhake measures. Open-ended questions on	†	One provider was not able to randomly select participants. Self-reported measures were used without any direct outcome measures. The study took place during the COVID pandemic and thus its implementation had some delays. The study was non-blinded, clustered, and open to contamination (i.e., participants sharing with others). To mitigate these factors, the researchers applied random selection in most communities and a staggered design at the community level to limit	3.4

	participants' and their extended families' experiences of the program, participant recommendations for the program and cost effectiveness	confident since they started working with a CHW, Participants felt they had more control over their lives since they started working with a CHW, Participants felt more able to make choices about their life since they started to work with a CHW, Participants felt they had more knowledge and skills for making choices since they started to work with a CHW, Participants felt more optimistic since they started to work with a CHW, Participants felt they had more access to resources since they started to work with a CHW.	the assessments, five focus groups with teina, and four individual interviews with teina were used for qualitative evaluation. 42 participants participated in focus groups conducted by community researchers assigned to the providers.		sharing across the providers. Researchers did not try to control contamination and blinding as "to do so would be counter to the mana motuhake of kaumātua" and researchers' desires to discuss the programme and learn more about it (58).	
Ramos-Cerqueira et al. (2005)	Primary: positive predictive value of using CHWs to detect dementia in the community	The case-finding procedure was appropriate to identify cases of dementia in the population. Self-reported empowerment: †	CHWs created a list of potential cases of dementia among participants living in their assigned neighbourhood and presented it in small discussion groups with 2 psychologists and 2 psychiatrists. Each potential case was discussed and then CHWs revised their lists. Psychiatrists then evaluated the final probable cases to confirm the clinical diagnosis.	The study leveraged CHWs, healthcare professionals with pre-existing rapport with the families in the community and prior experience working in the neighbourhood observing older people.	The psychiatrist performing the final clinical evaluation was not blind to participants' status, as all participants at this stage were indicated cases. Study did not evaluate a sample of non-indicated older people to determine the false-negative rate; as such, the specificity and sensitivity of the method could not be evaluated.	3.4
Rovner et al. (2018)	Primary: a decline of 6 or more recalled words on the total recall score of the	Behavioural activation significantly reduced the risk of cognitive decline compared with supportive therapy. There	Health literacy was measured at baseline. After baseline, HVLIT-R was administered at months	The study used current diagnostic criteria and validated psychometric outcomes. A large	The racial characteristics of the sample limit generalizability. Non-random attrition (higher	3.4

	Hopkins Verbal Learning Test-Revised (HVLTR) Secondary*: functional decline	were no differences in physical or social activity. Self-reported empowerment: †	6,12, 18 and 24 using different test versions. The National Alzheimer Coordinating Center's uniform data set neuropsychological battery was administered at months 12 and 24. Timeline for collecting functional impairment, activity participation, frequency of physical activity, and self-reported chronic medical conditions measures †.	sample was recruited, intent-to-treat analysis was performed, and the study had successful randomization, adequate power, masked outcome assessments, and high adherence to standardized and credible interventions. A unique strength was the prevention of cognitive decline in older black individuals with MCI, a high-risk and greatly understudied population. The primary outcome was a psychometrically defined outcome rather than clinically defined to facilitate community-based assessment. This approach balanced the need for scientific rigor with the recognized difficulties of recruiting, assessing, and retaining minority participants in a relatively long RCT.	in men) may have skewed results. The use of a psychometrically defined outcome may explain why different numbers of participants met the primary outcome at different times.	
Steinman et al. (2023)	Primary*: depression severity at 5 months Secondary: number of referrals for social needs	Participants changed their health behaviours and social context in addition to changing their attitudes and beliefs that contributed to their depression. Participants saw significant improvements in their depression while receiving 393 referrals to	An electronic data registry was used to obtain quantitative data on participants as well as process qualitative data on social and health needs referrals made. Qualitative data sources, including semi-structured interview	Study had high acceptability, feasibility, and fidelity, and was patient centred. Use of secondary data made collection pragmatic and allowed incorporation of diverse perspectives and multiple data sources.	Study did not have a randomized control group and utilized secondary data analysis rather than primary data gathering for research. The study adapted existing evidence-based practices rather than	3.4

		address their social needs (2.6 social needs per participant on average) and 246 health education materials to support chronic disease management. 80% of referrals resulted in connections to services. However, authors reported that stressors remained due to PEARLS being insufficient to address all member needs (e.g., poor quality health care and caregiving). Embedding depression screening into low-income housing sites and providing care in the home and by phone improved engagement and access to care. Adapting an existing depression intervention, PEARLS, for delivery by CHWs was effective for addressing depression among older Latino immigrants. Regular training, coaching, clinical supervision, and data monitoring supported PEARLS delivery in the new context. Self-reported empowerment: Since working with a CHW, participants felt more: self-confident, in control of their lives, like they belonged in their community, able to make choices about their life,	transcripts, participant testimonials, technical assistance/coaching call notes, sustainability planning coaching call notes, clinical supervision session fidelity reports, narrative progress reports, intervention materials, internal planning documents, dissemination products, and evaluation reports, were also reviewed.		developing new practices with the community-based organization and older adults.	
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		knowledgeable and skilled at making choices, optimistic, able to speak up for themselves, and like they had more access to resources.				
Wang et al. (2013)	Primary: knowledge, attitudes, and behaviours related to medication safety	There were no differences between the intervention and control group regarding medication knowledge or attitudes on the KAB-MS test at baseline, and none of the participants demonstrated medication safety behaviours during the pre-test assessment. There was also no change over the course of the study in these measures for the control/routine care group. The intervention group, however, demonstrated higher scores with regard to medication safety knowledge after two months, and significantly more participants in the intervention group showed positive behaviour changes on three medication safety behaviours. There was no significant difference between groups regarding attitude after the intervention. Self-reported empowerment: †	Program was evaluated using pre- and post-tests of knowledge, attitudes, and behaviours with regard to medication safety ("KAB-MS"). The test was a 22-item researcher developed structured-questionnaire, based on the Medication Safety Guide provided to each participant. Two trained interviewers assisted participants in completing demographic information and the KAB-MS. This was tested before beginning the intervention and at 10 weeks after initiation of the study.	Paper looked at a vulnerable population and used a well-defined training program to prepare volunteers to work with the participants. In addition, participants' education and lack of health literacy was taken into account. Participants came from different villages and did not otherwise communicate, and volunteers came from the same communities they visited during the study.	Elders were chronically ill with limited education, limiting the generalizability of the study. Authors note that changing attitudes can take longer than the relatively short time frame of the intervention and suggested longitudinal implementation is needed.	3.4
*Includes self-reported mental, physical, social, and/or emotional health outcomes † = not reported, captured, or presented SDG = sustainable development goal						

5.5 Health equity

Just over half of the papers expressly considered equity in some way. All seven of these papers targeted a specific disadvantaged group or population based on participants' ethnicity, race, culture, or socioeconomic status. Two of these studies additionally considered participants' place of residence and saw home-based service delivery as a way to improve equity through increasing service accessibility.

Three of the seven studies delivered midstream actions – i.e., addressing individuals' social needs (55)(56)(83). Two studies delivered downstream action – i.e., providing clinical services and care to underserved racial or ethnic minority communities (59)(84). One study delivered both midstream and downstream actions (53) and another focused on upstream action – i.e., educating systems about community perspectives and advocating for the health and social needs of the community – in addition to delivering midstream action (58). No studies assessed the effect of the intervention on equity of outcomes.

5.6 Social connection

Dr. Vivek Murthy, as a part of his US Surgeon General's Advisory in 2023, highlighted three components of social connection each essential for health:

- Structure: the number, variety, and frequency of relationships and interactions with others;
- Function: the degree to which others can be relied upon for various needs; and
- Quality: the degree to which relationships and interactions are positive, helpful, or satisfying (36).

Considering these component and objective 6, few studies sought to generate social connection. Two papers studied functional aspects (i.e., CHWs' roles in delivering social

support)(58)(53). One paper studied the impact of CHW intervention on the quality of participants’ relationships as measured by their sense of belonging to the neighbourhood (56). Most papers did not examine participants’ social networks, support, engagement, or loneliness.

5.7 Supporting healthy ageing

Promoting intrinsic capacity and preventing its decline are central components of supporting healthy ageing (89). To enable the author to effectively explore this topic, the distinct interventions and related outcomes from each paper were mapped. In Fig. 2, the middle column, “included papers”, represents the distinct CHW interventions, and the domains columns, “intrinsic capacity” and “environments”, reflect the independent but interrelated specific domains comprising the broader domains of intrinsic capacity and environments. The connecting lines denote the domains where an impact has been reported and main findings in included papers.

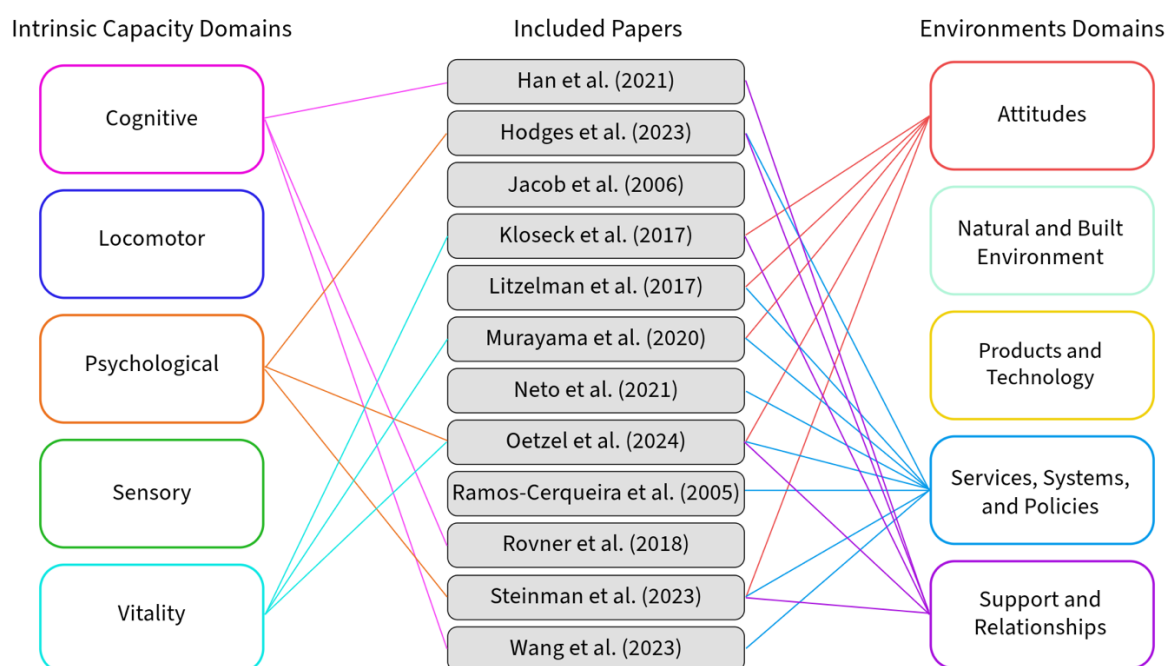


Fig. 2 Coverage of intrinsic capacity and environments domains impacted by CHWs in included papers. Adapted from *E. Owusu-Addo et al. (2021) (90)*.

Of the eight studies whose findings suggested CHWs impact intrinsic capacity, three studies each utilized CHWs to develop participants' cognitive, psychological, and vitality capacities. No papers developed participants' locomotor or sensory capacities. Six of the papers took primary prevention measures with a subset of these ($n=2$) additionally taking secondary or tertiary prevention measures. Two papers only took secondary prevention measures (59)(55).

Modifying the environment for the benefit of individuals and populations is also central to healthy ageing (89). Among studies where CHWs' roles influenced environment, the impact was limited to the attitudes, services, systems, policies, and support and relationships domains; no papers demonstrated impact on the natural and built environment or technology.

Among papers with an influence on attitudes, most positively impacted older people's self-confidence, sense of control, and optimism for their future; however, one paper reported that a peer educational intervention did not improve participants' sense of belonging in the neighbourhood (56).

Among papers covering support and relationships, two studies (59)(55) discussed the older person-caregiver dyad, suggesting that CHW service delivery lessened caregiver burden, increased caregiver education and support, and was highly feasible and acceptable. This dyad model of service delivery allowed for adaption of care plans according to the older person's values and preferences and their "emerging and changing conditions" (89).

Most papers that focused on services, systems, and policies delivered a new service or sought to influence the quality, responsiveness, and/or location of services delivered. Of the eight papers impacting this domain, five reflected a shifting paradigm to deliver more

coordinated services, and two of those five papers additionally described using more person-centred models of care, as recommended by WHO (89).

Looking across Table 3 and this evidence gap map, results show that a wide range of approaches were applied to address varied conditions, diseases, and needs that, in turn, affected older people’s capacities and environments.

The conceptual model of healthy ageing submitted by the WHO is a helpful heuristic for discovering which included papers explored CHW interventions to strengthen functional ability. The domains of functional ability impacted by CHW intervention are mapped in Fig. 3 along a continuum to symbolize where studied interventions impacted participants holistically, to both “survive” and “thrive”.

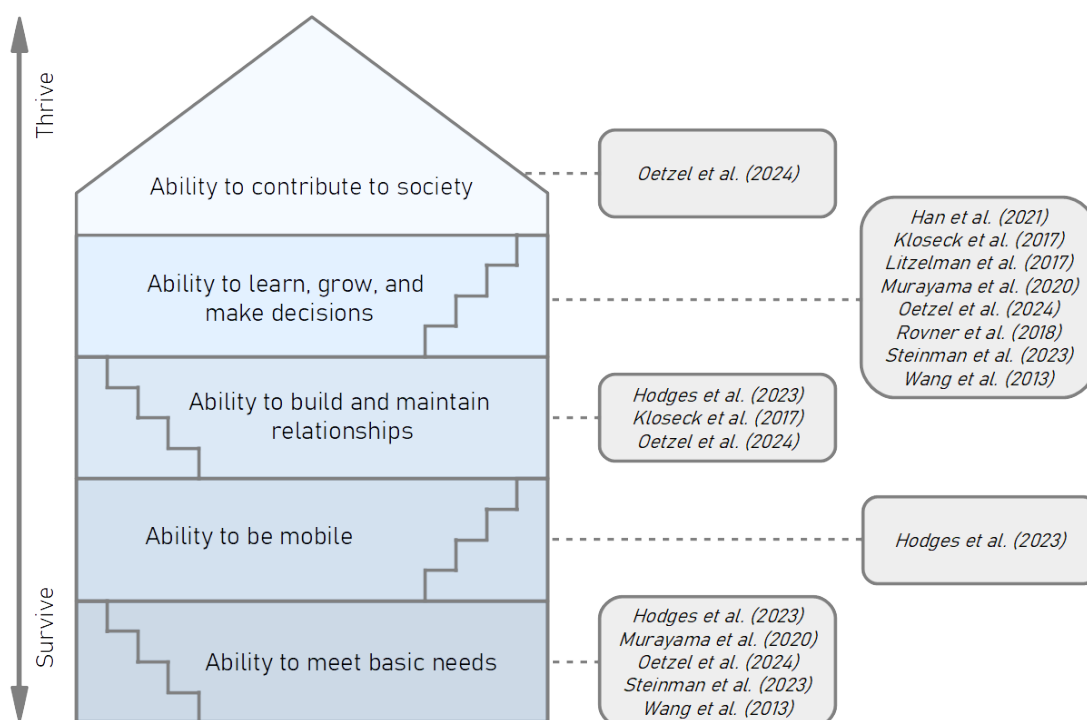


Fig. 3 Coverage of functional ability domains by included papers.

Looking across this evidence gap map, the results show that CHWs may help older people to increase their functional abilities along the continuum. The WHO does not

prescribe a hierarchy for the five domains of functional ability and Fig. 3 is not seeking to impose one either. The house-like structure symbolizes older people's desire to age at home or in a community that feels like home. The stairs visually link the domains to convey their interrelated nature.

Collectively, these healthy ageing results are summarized in Table 1 as the conceptual contributions of each paper regarding CHWs' potential capacity to support healthy ageing.

6 Discussion

6.1 Summary of findings

In this scoping review, the author identified thirteen research papers focused on older people's well-being that addressed health outcomes, health equity, social connection or service delivery. The author's findings indicate that CHWs have capacity to support healthy ageing. The author also found that collectively, study researchers considered all ten roles and twenty-seven sub-roles of CHWs, which speaks to the breadth of CHWs' potential scope of practice in meeting older people's needs in community. Studied interventions addressed various components of healthy ageing but suggested CHWs' may help to develop older people's intrinsic capacities, transform "the factors in the extrinsic world that form the context of an individual's life" (91), and strengthen individuals' functional ability such that they can survive and thrive. While doing so, CHWs may help to deliver integrated and coordinated services, and empower older people. This could enhance older people's well-being – the ultimate purpose of healthy ageing.

6.2 Implications for policy and practice

Existing literature suggested CHWs may impact older people from ethnic minority populations and those with complex conditions. This study found that CHWs are performing functions potentially critical to delivering support to any older person, regardless of their need.

To stratify the evidence by participants' domain(s) of need and standardly categorize interventions delivered in included papers, the author leveraged the WHO UHC Compendium and identified some interesting findings. Fig. 4 maps the UHC compendium groups and subgroups to one of four domains of need along the presented continuum of care:

1. Needs that are universal (“universal”),
2. Special considerations for older people (“vulnerable”),
3. Older people with multiple needs (“complex”), and
4. Those whose needs necessitate immediate action (“acute”).

Fig. 4 also elucidates which CHW roles were most studied in included papers within and across the domains of need. The size of the bubbles represents the total studies in each domain examining a particular CHW role, normalized for simplicity.

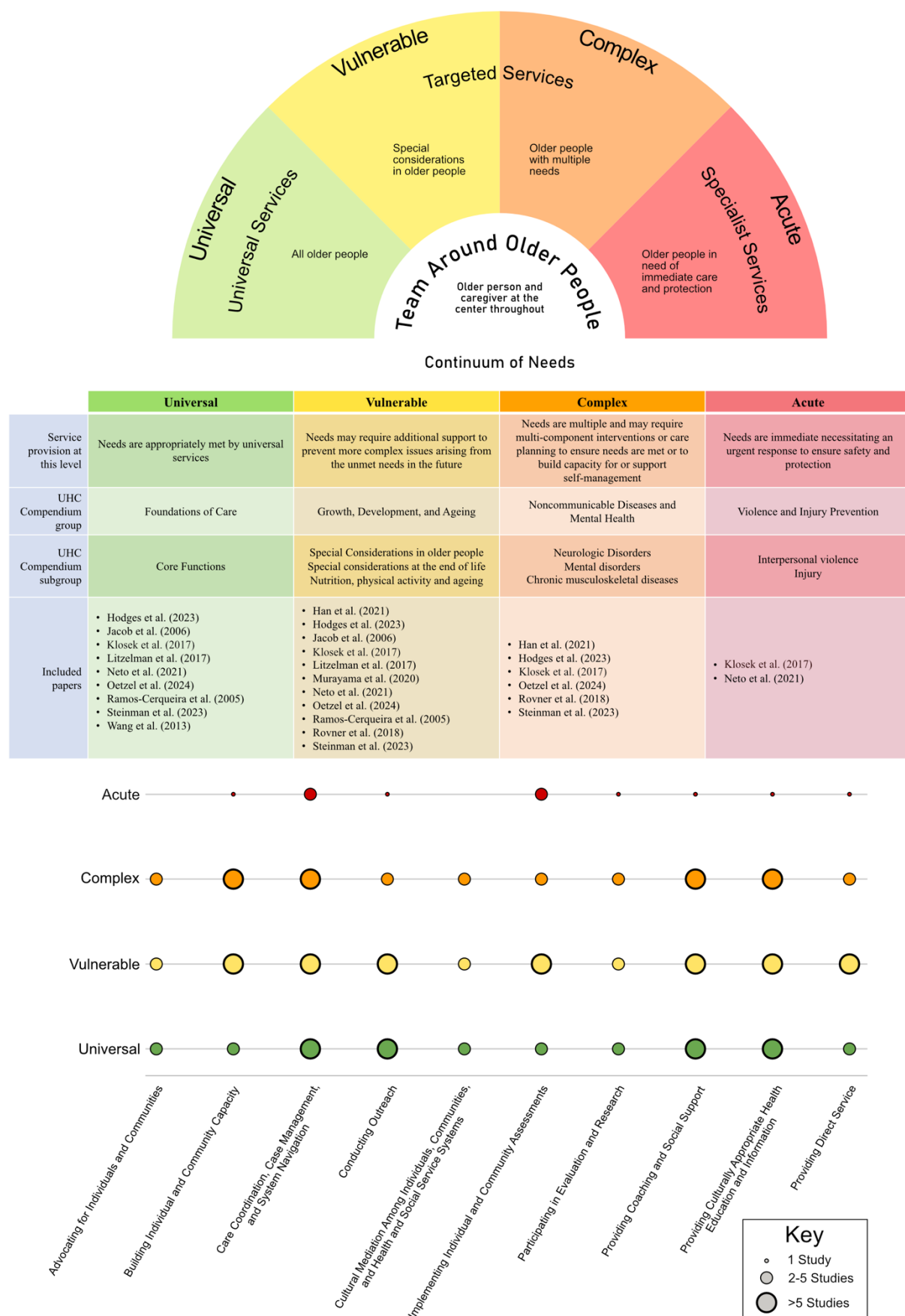


Fig. 4 Included papers categorized according to the UHC compendium and distribution of studied CHW roles by continuum of needs domains. Adapted from *B. Smith* (92).

Fig. 4 indicates that most papers explored CHW intervention to provide care and services to vulnerable older adults at greater risk than the general ageing population. Three-quarters of papers utilized CHWs to improve the accessibility and organization of services and to help older people establish relationships with a focus on longitudinal care. These activities (e.g., preventive screenings, medication reviews, and social and clinical referrals) sought to optimise participants' health and well-being and reduce disparity – aims which are universally relevant to all older people and essential to a UHC package.

Half of the papers studied interventions to deliver preventive measures to older people with complex conditions and disorders, and just two papers investigated CHWs as a solution for addressing needs necessitating an urgent response.

Considering the density of research along the continuum of care, CHWs may be a solution for meeting both targeted needs of older people and those that are ubiquitous across the population. Looking at the distribution of studied roles across all papers and all domains, three roles were most examined: *providing coaching and support, care coordination, case management, and system navigation*, and *providing culturally appropriate health education and information*, suggesting these roles are potentially critical to supporting all older people. However, without having appraised the quality of included papers and with few papers available on this topic area, the roles uniquely performed by CHWs in the different populations (e.g., universal and vulnerable populations) cannot be determined.

In view of the study's results and Fig. 4, in the aggregate, CHWs are primarily being used to deliver primary and secondary prevention to address specific conditions, diseases, and special considerations of older people in urban geographies in high-income countries (HICs). Given CHWs did not originate in HICs and the greatest number of persons over 60 years by 2100 will be in lower and upper middle-income countries (93), this result is surprising. The

US will also be home to one of the largest concentrations of persons over 60 years in that timeframe, and these results may provide guidance on where CHWs can deliver impact against and across the ICC framework's core priority areas. As the US gathers additional learnings about how, why, and in what contexts CHWs can support healthy ageing, it will be paramount that case studies be disseminated transnationally to help combat large-scale health inequities experienced by older people living in LMICs in particular. Where LMICs and UMICs are already leveraging CHWs to deliver care and services to people more difficult for PCPs to reach (e.g., rural populations), the US should collaborate with local researchers and increase resources flows to those nations so that learnings relevant to all nations can be used to inform evidence-based practice. This is a healthy ageing policy imperative.

These findings also reveal a significant need for standardization. While CHWs have led national efforts to standardize their roles and performance indicators, opportunity remains to address discrepancy in CHWs' scope of practice (e.g., number of persons per CHW, requirements for and quality of training and supervision, and paid vs voluntary roles). While the author would not expect global standardization, even within included papers set in the US there is notable discrepancy in training standards. Standardization of activities will further be critical to securing more sustainable funding from CMS who will require a uniform way to code for and reimburse CHWs' services.

Notably, one paper utilized retirees to support their peers. Given a shrinking portion of the population is working age, using retirees may be a way to sustainably promote health and social connection critical to well-being in older age and represent an opportunity to re-engage older citizens and shift some burden off working age caregivers.

6.2.1 Major themes

As this scoping review did not have an objective of informing the development of a theory or conceptual framework, the author did not undertake an exploratory thematic analysis (94). However, reflecting on the entirety of the data set, a few emergent themes surface that helps to gain insight about factors potentially relevant to CHWs capacity and ability to support healthy ageing in practice. Those themes are preliminarily explored below.

Six major themes were identified that coalesced into two dimensions: enabling and limiting factors of CHW intervention.

6.2.1.1 Dimension 1: Enabling factors

All twelve papers described enablers of CHW intervention. Three subordinate themes emerged: (a) system responsiveness, (b) responsibility for healthy ageing, and (c) knowledge and empowerment.

a) System responsiveness

System responsiveness reflects how well the health system meets the “legitimate expectations of patients and the population” (95) and the idea that factors such as older people’s participation in care planning, the degree to which care delivered is person-centred and culturally congruent, and the level of support provided to caregivers may impact whether or how well CHWs can support healthy ageing. For example, cultural congruence reflects a state where CHWs’ practices, behaviours, or communication styles align with participants’ cultural values, beliefs, and norms, creating a “fit” between CHW actions and the cultural context of participants (96). Cultural congruence may make interventions socially valid and culturally appropriate and better able to address some fundamental drivers of health disparity (e.g., lack of access to resources). Steinman et al. (2023) found CHWs “*offering services in*

Spanish and understanding the cultural context of being Latino (e.g., being Mexican-American, living as an immigrant in the U.S.) influenced engagement and impact” (53). This practice enabled the system to be more responsive to participants’ needs in service delivery and potentially affected the intervention quality and outcomes.

b) Responsibility for healthy ageing

This theme reflects the idea that the public and communities may have collective responsibility for enabling healthy ageing, such as by creating environments that empower older people to be independent and socially connected or by advocating for policies that direct resources towards interventions that can help to develop older people’s capacities and abilities. For example, when investigating whether a participatory community development approach led by CHWs improved diagnosis and management of osteoporosis, researchers found that *“successful risk screening not only depends on educating physicians but also relies on increasing public awareness of osteoporosis”* (54). This suggests that the public’s awareness, expectations, and behaviours are potentially critical to an appropriate public health response, prevention action(s), and systems change (97)(98).

c) Knowledge and empowerment

Knowledge and empowerment reflect how increasing individual competence can facilitate high-quality service delivery and self-care practice(s) with positive benefits. For example, while evaluating a CHW advance care planning (ACP) intervention, Lizelman et al. (2017) reported that training influenced care coordinator assistants’ (CCA) attitudes about working with older people, noting that *“several CCAs expressed gratitude ... and a desire to train others due to their changed perception of the high importance of this work”* (82). This change in perception supported more responsive and therefore, higher quality service delivery. Oetzel et al. (2024) found that the CHW intervention they studied, which sought to

leverage Teina's own strengths and enable self-determination, resulted in improvements in health-related quality of life, life satisfaction, and participant self-confidence (58).

6.2.1.2 Dimension 2: Limiting factors

Eight papers described limiting factors of CHW intervention. Three subordinate themes emerged: (a) unsustainability, (b) status quo, and (c) dependency.

a) *Unsustainability*

Unsustainability reflects factors that may inhibit the positive benefits of CHW intervention from perpetuating or being scaled-up, such as a lack of adequate and sustainable financing, reliance on measurement sets that are predominantly process- and disease-oriented (128), and interventions that are not structured or resourced to be sustained, even if doing so would be beneficial. Several papers suggest that these factors are needed to achieve a primary health system in which services are accessible, equitable, and of high quality. For example, Steinman et al. found that *“delivery was challenged by weak partnerships with clinics for participant referral, engagement, reimbursement, and sustainability post-grant funding”* (53). This research team also found that measuring outcomes that matter to older people rather than process-related measures fits with the Patient Centered Outcomes Research Institute (PCORI) efforts to “center outcomes for populations that have been underserved” and helps to draw attention to the positive benefits of person-centered service delivery (53).

b) *Status quo*

Status quo reflects how some actors within systems and practices prioritize traditional ways of operating and legacy service delivery structures that perpetuate inequity.

Several papers suggested that entrenched stakeholders were difficult or resistant to change and negatively impacted linkages important to programmatic implementation and success. Studying a CHW intervention to improve access to quality depression care for older Latino adults, Steinman et al. noted that “time, trust, and turf issues hindered these linkages: the clinical and community settings each have different cultures and as such, the CBO [community-based organization] indicated that two clinics they tried to partner with preferred to build their own program rather than refer out to CBOs” (53). This illustrates that educating providers on CHWs’ roles and values as well as team formation and development may be important success factors.

c) Dependency

Dependency reflects older people’s loss of self-determination and their reliance on caregivers to access and receive needed support. Some papers suggest that the caregiving-care recipient dyad should be assessed and considered as a part of CHW intervention given the closely intertwined relationships between “older adults’ families, resource access avenues, and social support networks” (55).

The major themes suggest several items that may be critical for future practice:

- Caregiver-care recipient dyad dynamics may need to be evaluated as part of CHWs’ roles and adequate support for caregivers built into the service delivery model;
- Concentrated efforts to combat “time, trust, and turf issues” that impede critical linkages and system responsiveness may need to be made;
- Data and indicators used to determine which health/social issues get prioritized may need to include older people’s perspectives on what matters most and be done in the

spirit of “implementing systems-strengthening, high quality, and equitably delivered care” (128); and

- CHWs’ lived experiences in the communities they serve may need to be at the forefront of implementation and service planning; their positions grant them unique knowledge of the dominant and minority cultural values, beliefs, and norms that impact intervention acceptability, which may help inform providers of drivers of health disparity within their patient populations.

Leveraging CHWs to support healthy ageing may be an emergent approach and represent a systems innovation in the US context – and perhaps globally. The major themes suggest a need to consider the pre-conditions for systems change: how power, purpose, resource shifts, and relationships influence nations’ motivations, capacity, and abilities to scale-up and sustain CHW practice (99). The included papers’ majority focus on conditions and disease is emblematic of a resistant status quo within the health system. The public’s awareness of and their expectations for whether healthy ageing is prioritized for their elders may be essential to creating systems capabilities for change. Intra- and intergenerational relationships may also be critically important as resources are shifted to enable a future where CHWs support healthy ageing at the population level. A symbiotic relationship between the young and the old and within generations will be needed to mobilize systemic innovation and bring new resources and policies into to the system (100).

6.3 Implications for future research

Intrinsic capacity governs what an individual can do, while environmental factors enable or impede action and ultimately determine what an older person can achieve with their functional ability (9). Results showed a lack of studies exploring locomotor and sensory capacity development and opportunities to study CHW impact on older people’s natural and

built environments, products, and technology. Hence, there is scope for further research in these topic areas. More broadly, further research into how many spheres of intrinsic capacity and environments CHWs can affect within a singular intervention is needed. Relatedly, further study is needed on whether CHWs need condition, context, or disease specialization to deliver specific benefits.

The mobility domain was also understudied. Mobility is critical for independence and being able to remain at home, access services, and participate in social and community activity, and is directly relevant to all other functional abilities. The ICC framework particularly spotlights fall prevention and highlights a need for deeper exploration of practices to reduce fall risk and mitigate injury.

The ability to contribute is closely tied to individuals' sense of purpose and engagement in older age. While interrelated to the other domains, the ability to contribute also depends on other abilities to be strengthened as prerequisites, which may be why this area is less studied (87). The ICC framework emphasizes a future where all older Americans can thrive. Increased functional ability widens an individual's choices and enables them to thrive, ultimately achieving the goal of healthy ageing (87). Thus, further research to understand CHWs' roles in strengthening older people's abilities across the continuum is needed.

ICOPE highlights how acute conditions (e.g., a bone fracture) can endanger older adults' potential to restore their intrinsic capacity and influence the level of support they need. Provision of services to recompense acute losses in intrinsic capacity at the individual level and adoption of interventions to optimise older people's milieu at the population level are of paramount importance. The small number of papers in the acute domain area ($n=2$), which all focused on participant-level outcomes, may suggest CHWs are not suited to

meeting needs in this domain or that this is an area of emerging evidence. Further research may drive clarity here.

The variation in outcomes studied and levels of evidence in included papers may impact the author's ability to conduct a systematic review. More research on CHWs' effectiveness within the studied roles and domains is needed to better inform evidence-based practice (130). This would call for robust measures or indicators of intrinsic capacity and functional ability, which can also facilitate countries in monitoring progress on healthy ageing and in developing effective CHW interventions for all-inclusive well-being (101). The *Decade on Healthy Ageing: Baseline Report* provides a starting point (87). The lack of cost effectiveness research included in the review suggests this is also a critical area for future research for which more robust measures are also needed.

The Older Americans Act, which “helps older adults live independently, continue to work and volunteer, and age with dignity”, is up for reauthorization in 2024. The ICC has called for engagement from people across the US to explore opportunities to support healthy ageing and well-being, and the Institute for Health Metrics and Evaluation has highlighted ageing populations as a global health issue to watch (128). A “policy window” in which policy reform can happen in government (129) and support from decision makers can be acquired to fund, scale, and sustain CHW interventions is nigh. Future research needs to not only measure effectiveness but also continue to investigate how, why, and in what contexts CHWs can support healthy ageing so that the potential public health impact of CHW intervention can be understood; a thematic analysis may help to inform this program theory and provide insight into whether CHWs' and participants' experiences suggest CHW intervention is acceptable. Additional attention to whether CHWs' can increase older people's social connection and improve equity in outcomes is also warranted.

6.4 Strengths and limitations

Strengths

This review adapted and developed novel, replicable evidence gap maps to pragmatically clarify a complex topic and answer a question beyond simply evaluating effectiveness. While doing so, the author was compliant with a rigorous methodology and reporting framework that was appropriate given the state of the evidence on this topic. The author used a recognized international framework on healthy ageing and also leveraged a standardized extraction form that was pilot tested with a second researcher. The WHO functional ability construct leveraged throughout the review was previously examined in a paper by Nishio et al. (2024) using empirical data from Japan and found to be valid (101).

Limitations

Due to time constraints and it not being a requirement of scoping review (46), the author did not perform quality assessments on included papers; as such, the author could not evaluate the credibility or reliability of research findings or draw conclusions about the strength of the evidence. Potential biases and methodological flaws in included papers were not identified.

The presented percent agreement among researchers in the screening stage of the research must be interpreted with caution as it does not account for chance agreement and is not presented with the corresponding Cohen's Kappa coefficient (102). Only one researcher conducted the mapping between included papers and the continuum of needs and domains; ideally, this effort would have been conducted by a multidisciplinary team to ensure alignment between study aims, findings, and the domain features. Further, the author developed overall findings on those domains where an effect was reported; the author did not

establish where an effect was not observed. These findings are more likely to be relevant as part of a systematic review.

As there were many sources during the initial screening phase, the author did not engage stakeholders during the search process to provide consultation on the research question or strategy, potentially limiting the fit between the research and what matters most to older people. Further, this may have resulted in missed eligible sources. Findings were not shared with stakeholders to gather their reactions; however, there is still opportunity to disseminate findings and in particular, share them with the Interagency Coordinating Committee, and potentially influence the US's first national plan on ageing.

7 Conclusion

This review suggests CHWs may have capacity to support healthy ageing in community for older people. By enacting the roles central to their profession and capitalising on their unique memberships in communities, CHWs can potentially coordinate, integrate, and personalize service delivery, while facilitating an evolution towards optimisation of functional ability and promoting healthy ageing over the life course.

CHWs represent a promising practice with opportunity to study how we might best implement and improve these interventions as they scale – and ensure their potentially positive impacts transcend older people and benefit all generations. Included papers suggest that CHWs can have a role in collecting data to allow for clear assessment of their impact and facilitate evidence-based refinements and adjustments overtime. While a national RCT to further evaluate CHWs' effectiveness is likely impractical, CHWs may be able to support quality improvement incrementally and adapt their practice to address older people's evolving needs.

It is up to the choices and actions of governments and the public to see the potential of CHWs, communities, and older people themselves to deliver value-based care and well-being for all older people. Trust is the anchor needed to support the most vulnerable in society, and CHWs' cultural congruence with such patient populations uniquely suits them to the task of securing it. Through their multisectoral linkages that put them in the orbit of system's leaders, CHWs can be protagonists of change in the organisation of systems and the delivery of services across sectors. Whether these essential workers will be deployed systemically to support healthy ageing will depend on global health leaders stepping up to the challenge. The mission is worthy.

8 Reflection

Margaret Wheatley, an eighty-year-old American author, once said “there is no power for change greater than a community discovering what it cares about.” This is the journey that the Masters in Global Healthcare Leadership (MGHL) cohort embarked on: to improve health for all people globally. In every context, an ambitious series of policy initiatives, legislation, and programmes will be needed to address global health issues such as mental health, climate change, and population ageing. Battling these systemic challenges will not be easy, but the MGHL course has equipped us with new skills in evidenced-based and systems practice that can serve as a useful starting point, “illuminating that “our currency lies in collective leadership” (127) and teaching us critical capabilities to foster it (103)” (131).

When I started the programme in August 2022, I set a goal to identify a healthcare challenge that I wanted to spend my career unpacking and addressing. With every sequential assessment and culminating in this dissertation, I chipped away at the goal until a new vision became clear. I believe in the potential of communities to welcome and help people of all ages, especially older people, in ways that no individual can. In the course, guest lecturers Lord Nigel Crisp and Dr. Agnes Binagwaho described a community-born-and-bred workforce with the power to be transformative for primary care and from that moment forward, it was clear to me that the future of healthy ageing for older people lies in CHWs. In the programme, I discovered what I care about and achieved a personal goal. I am excited to go forth and lead with the knowledge the MSc programme has given me.

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Conflicts of interest

There is no conflict of interest in this project.

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Appendices

Appendix I: Search term set

Term	Search
Community Health Worker	“community health worker*” OR “community health nurs*” OR “health auxiliary” OR “frontline health worker*” OR “outreach worker*” OR “lay health worker*” OR “promotora*” OR “village health worker*” OR “volunteer health worker*” OR “voluntary health worker*” OR “community health agent*” OR “health promoter*” OR “community health aide*” OR “community health officer*” OR “community health volunteer*” OR “community health distributor*” OR “community health surveyor*” OR “community health assistant*” OR “community health promoter*” OR “health extension worker*” OR “village health volunteer*” OR “close-to-community provider*” OR “community-based practitioner*” OR “barefoot doctor*” OR “Community Practitioner*” OR “community-based practitioner*” OR “promotoras de salud” OR “agentes de saúde” OR “rural health auxiliaries” OR “Activista” OR “Agente comunitario de salud” OR “Agente comunitário de saúde” OR “Animatrice” OR “Barangay health worker*” OR “Basic health worker*” OR “Brigadista” OR “Colaborador voluntario” OR “Community drug distributor*” OR “Community health agent*” OR “Community health promoter*” OR “Community health representative*” OR “Community resource person*” OR “Female multipurpose health worker*” OR “Health promoter*” OR “Kader*” OR “Outreach educator*” OR “Promotora” OR “Shastho shebika” OR “Shastho karmis” OR “Sevika” OR “Village health helper*” OR “Village drug-kit manager*” OR “Accompagnateur” OR “Accredited Social Health Activist*” OR “Animator” OR “ASHA” OR “Auxiliary Nurse*” OR “Auxiliary Nurse-midwi*” OR “Bridge-to-Health Team” OR “Behvarz” OR “Care Group*” OR “Care Group Volunteer*” OR “Community Case Management Worker*” OR “Community Health Care Provider*” OR “Community HealthCare Provider*” OR “Community Health Extension Worker*” OR “Community Surveillance Volunteer*” OR “Family Health Worker*” OR “Family Welfare Assistant*” OR “Female Community Health Volunteer*” OR “Health Agent*” OR “Health Assistant*” OR “Health Extension Worker*” OR “Health Surveillance Assistant*” OR “Lead Mother*” OR “Malaria Agent*” OR “Mobile Clinic Team*” OR “Nutrition Agent*” OR “Nutrition Counselor” OR “Nutrition Counselor*” OR “Peer Educator*” OR “Shasthya Shebika” OR “Socorrista” OR “support worker*” OR “care coordinator*” OR “patient navigator*” OR “health educator*” OR “home health aide*” OR “link worker*” OR “social prescriber*” OR “cultural broker*” OR “health broker*” OR “indigenous health professional*” OR “indigenous lay worker*” OR “informal helper*” OR “lay health advisor*” OR “neighbourhood-based public health worker*” OR “lay community health worker*” OR “health guide*” OR “health hostess*” OR “health liaison*” OR “health education

	aide*" OR "neighbourhood worker*" OR "neighbourhood representative*" OR "nonprofessional worker*" OR "natural helper*" OR "navigator*" or "outreach worker*" OR "peer counselor*" OR "peer educator"
Older People	"Aged" OR "geriatrics" OR "aging" OR "ageing" OR "geriatric*" OR "elder*" OR "old age" OR "older adult*" OR "older people*" OR "older person*" OR "older men" OR "older women" OR "older population"
Primary Health Services	"primary health" OR "primary care" OR "prevention" OR "preventive care"
Health Outcomes	"health outcome*" OR "behavioural outcome*" OR "psychological outcome*" OR "health measure*" OR "chronic disease measure*" OR "function*" OR "adherence" OR "clinical outcome*" OR "wellbeing" OR "well-being"
Healthy Ageing	"healthy ageing" OR "healthy aging" OR "active ageing" OR "active aging" OR "positive ageing" OR "positive aging" OR "longevity" OR "quality of life"
Health Equity	"health equity"
Loneliness	"loneliness" OR "lonely" OR "isolation"
Social Connection	"social connection" OR "social relations" OR "social relationship*" OR "social contacts" OR "social network*" OR "community participation" OR "neighbourhood participation" OR "neighbourhood participation"

Appendix II: Search strategy

All searches were conducted on May 1, 2024.

PubMed

#	Search	Results
1	“community health worker*” OR “community health nurs*” OR “health auxiliary” OR “frontline health worker*” OR “outreach worker*” OR “lay health worker*” OR “promotora*” OR “village health worker*” OR “volunteer health worker*” OR “voluntary health worker*” OR “community health agent*” OR “health promoter*” OR “community health aide*” OR “community health officer*” OR “community health volunteer*” OR “community health distributor*” OR “community health surveyor*” OR “community health assistant*” OR “community health promoter*” OR “health extension worker*” OR “village health volunteer*” OR “close-to-community provider*” OR “community-based practitioner*” OR “barefoot doctor*” OR “Community Practitioner*” OR “community-based practitioner*” OR “promotoras de salud” OR “agentes de saúde” OR “rural health auxiliaries” OR “Activista” OR “Agente comunitario de salud” OR “Agente comunitário de saúde” OR “Animatrice” OR “Barangay health worker*” OR “Basic health worker*” OR “Brigadista” OR “Colaborador voluntario” OR “Community drug distributor*” OR “Community health agent*” OR “Community health promoter*” OR “Community health representative*” OR “Community resource person*” OR “Female multipurpose health worker*” OR “Health promoter*” OR “Kader*” OR “Outreach educator*” OR “Promotora” OR “Shastho shebika” OR “Shastho karmis” OR “Sevika” OR “Village health helper*” OR “Village drug-kit manager*” OR “Accompagnateur” OR “Accredited Social Health Activist*” OR “Animator” OR “ASHA” OR “Auxiliary Nurse*” OR “Auxiliary Nurse-midwi*” OR “Bridge-to-Health Team” OR “Behvarz” OR “Care Group*” OR “Care Group Volunteer*” OR “Community Case Management Worker*” OR “Community Health Care Provider*” OR “Community HealthCare Provider*” OR “Community Health Extension Worker*” OR “Community Surveillance Volunteer*” OR “Family Health Worker*” OR “Family Welfare Assistant*” OR “Female Community Health Volunteer*” OR “Health Agent*” OR “Health Assistant*” OR “Health Extension Worker*” OR “Health Surveillance Assistant*” OR “Lead Mother*” OR “Malaria Agent*” OR “Mobile Clinic Team*” OR “Nutrition Agent*” OR “Nutrition Counselor” OR “Nutrition Counselor*” OR “Peer Educator*” OR “Shasthya Shebika” OR “Socorrista” OR “support worker*” OR “care coordinator*” OR “patient navigator*” OR “health educator*” OR “home health aide*” OR “link worker*” OR “social prescriber*” OR “cultural broker*” OR “health broker*” OR “indigenous health professional*” OR “indigenous lay worker*” OR “informal helper*” OR “lay health advisor*” OR “neighbourhood-based public health worker*” OR “lay community health worker*” OR “health guide*” OR “health hostess*” OR “health liaison*” OR “health education aide*” OR “neighbourhood worker*” OR “neighbourhood representative*” OR	38,169

	"nonprofessional worker*" OR "natural helper*" OR "navigator*" or "outreach worker*" OR "peer counselor*" OR "peer educator"	
2	"Aged"[Mesh] OR "Geriatrics"[Mesh:NoExp] OR "Aging"[Mesh:NoExp] OR "geriatric*" [Title] OR "elder*" [Title] OR "old age" [Title] OR "older adult*" [Title] OR "older people*" [Title] OR "older person*" [Title] OR "older men" [Title] OR "older women" [Title] OR "older population" [Title] OR "ageing" [Title] OR "aging" [Title]	3,738,028
3	"primary health" OR "primary care" OR "prevention" OR "preventive care" OR "health outcome*" OR "behavioural outcome*" OR "psychological outcome*" OR "health measure*" OR "chronic disease measure*" OR "function*" OR "adherence" OR "clinical outcome*" OR "wellbeing" OR "well-being" OR "healthy ageing" OR "healthy aging" OR "active ageing" OR "active aging" OR "positive ageing" OR "positive aging" OR "longevity" OR "quality of life" OR "living well at home" OR "health equity*" OR "loneliness" OR "lonely" OR "isolation" OR "social connection" OR "social relations" OR "social relationship*" OR "social contacts" OR "social network*" OR "community participation" OR "neighbourhood participation" OR "neighbourhood participation" OR "neighbourhood participation"	6,567,717
4	S1 AND S2	5,958
5	S3 AND S4	2,925

CINAHL

#	Search	Results
1	TI ("community health worker*" OR "community health nurs*" OR "health auxiliary" OR "frontline health worker*" OR "outreach worker*" OR "lay health worker*" OR "promotora*" OR "village health worker*" OR "volunteer health worker*" OR "voluntary health worker*" OR "community health agent*" OR "health promoter*" OR "community health aide*" OR "community health officer*" OR "community health volunteer*" OR "community health distributor*" OR "community health surveyor*" OR "community health assistant*" OR "community health promoter*" OR "health extension worker*" OR "village health volunteer*" OR "close-to-community provider*" OR "community-based practitioner*" OR "barefoot doctor*" OR "Community Practitioner*" OR "community-based practitioner*" OR "promotoras de salud" OR "agentes de saúde" OR "rural health auxiliaries" OR "Activista" OR "Agente comunitario de salud" OR "Agente comunitário de saúde" OR "Animatrice" OR "Barangay health worker*" OR "Basic health worker*" OR "Brigadista" OR "Colaborador voluntario" OR "Community drug distributor*" OR "Community health agent*" OR "Community health promoter*" OR "Community health representative*" OR "Community resource person*" OR "Female multipurpose health worker*" OR "Health promoter*" OR "Kader*" OR "Outreach educator*" OR "Promotora" OR "Shastho shebika" OR "Shastho karmis" OR "Sevika" OR "Village health helper*" OR "Village drug-kit manager*" OR "Accompagnateur" OR "Accredited Social Health Activist*" OR "Animator" OR "ASHA" OR "Auxiliary Nurse*" OR "Auxiliary Nurse-midwi*" OR "Bridge-to-Health Team" OR "Behvarz" OR "Care Group*" OR "Care Group Volunteer*" OR "Community Case	24,013

Management Worker*” OR “Community Health Care Provider*” OR “Community HealthCare Provider*” OR “Community Health Extension Worker*” OR “Community Surveillance Volunteer*” OR “Family Health Worker*” OR “Family Welfare Assistant*” OR “Female Community Health Volunteer*” OR “Health Agent*” OR “Health Assistant*” OR “Health Extension Worker*” OR “Health Surveillance Assistant*” OR “Lead Mother*” OR “Malaria Agent*” OR “Mobile Clinic Team*” OR “Nutrition Agent*” OR “Nutrition Counselor” OR “Nutrition Counselor*” OR “Peer Educator*” OR “Shasthya Shebika” OR “Socorrista” OR “support worker*” OR “care coordinator*” OR “patient navigator*” OR “health educator*” OR “home health aide*” OR “link worker*” OR “social prescriber*” OR “cultural broker*” OR “health broker*” OR “indigenous health professional*” OR “indigenous lay worker*” OR “informal helper*” OR “lay health advisor*” OR “neighbourhood-based public health worker*” OR “lay community health worker*” OR “health guide*” OR “health hostess*” OR “health liaison*” OR “health education aide*” OR “neighbourhood worker*” OR “neighbourhood representative*” OR “nonprofessional worker*” OR “natural helper*” OR “navigator*” or “outreach worker*” OR “peer counselor*” OR “peer educator*”) OR AB (“community health worker*” OR “community health nurs*” OR “health auxiliary” OR “frontline health worker*” OR “outreach worker*” OR “lay health worker*” OR “promotora*” OR “village health worker*” OR “volunteer health worker*” OR “voluntary health worker*” OR “community health agent*” OR “health promoter*” OR “community health aide*” OR “community health officer*” OR “community health volunteer*” OR “community health distributor*” OR “community health surveyor*” OR “community health assistant*” OR “community health promoter*” OR “health extension worker*” OR “village health volunteer*” OR “close-to-community provider*” OR “community-based practitioner*” OR “barefoot doctor*” OR “Community Practitioner*” OR “community-based practitioner*” OR “promotoras de salud” OR “agentes de saúde” OR “rural health auxiliaries” OR “Activista” OR “Agente comunitario de salud” OR “Agente comunitário de saúde” OR “Animatrice” OR “Barangay health worker*” OR “Basic health worker*” OR “Brigadista” OR “Colaborador voluntario” OR “Community drug distributor*” OR “Community health agent*” OR “Community health promoter*” OR “Community health representative*” OR “Community resource person*” OR “Female multipurpose health worker*” OR “Health promoter*” OR “Kader*” OR “Outreach educator*” OR “Promotora” OR “Shastho shebika” OR “Shastho karmis” OR “Sevika” OR “Village health helper*” OR “Village drug-kit manager*” OR “Accompagnateur” OR “Accredited Social Health Activist*” OR “Animator” OR “ASHA” OR “Auxiliary Nurse*” OR “Auxiliary Nurse-midwi*” OR “Bridge-to-Health Team” OR “Behvarz” OR “Care Group*” OR “Care Group Volunteer*” OR “Community Case Management Worker*” OR “Community Health Care Provider*” OR “Community HealthCare Provider*” OR “Community Health Extension Worker*” OR “Community Surveillance Volunteer*” OR “Family Health Worker*” OR “Family Welfare Assistant*” OR “Female Community Health Volunteer*” OR “Health Agent*” OR “Health Assistant*” OR “Health Extension Worker*” OR “Health Surveillance Assistant*” OR	
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	"Lead Mother*" OR "Malaria Agent*" OR "Mobile Clinic Team*" OR "Nutrition Agent*" OR "Nutrition Counselor" OR "Nutrition Counselor*" OR "Peer Educator*" OR "Shasthya Shebika" OR "Socorrista" OR "support worker*" OR "care coordinator*" OR "patient navigator*" OR "health educator*" OR "home health aide*" OR "link worker*" OR "social prescriber*" OR "cultural broker*" OR "health broker*" OR "indigenous health professional*" OR "indigenous lay worker*" OR "informal helper*" OR "lay health advisor*" OR "neighbourhood-based public health worker*" OR "lay community health worker*" OR "health guide*" OR "health hostess*" OR "health liaison*" OR "health education aide*" OR "neighbourhood worker*" OR "neighbourhood representative*" OR "nonprofessional worker*" OR "natural helper*" OR "navigator*" or "outreach worker*" OR "peer counselor*" OR "peer educator*")	
2	((TI aged OR AB aged) OR (MH aged+) OR (MH "geriatric* geriatrics+") OR (TI elder* OR AB elder*) OR (TI old* OR AB old*) OR (TI ageing OR AB ageing) OR (TI aging OR AB aging) OR (MH aging+) OR (MH "frail elderly+"))	1,335,791
3	TI ("primary health" OR "primary care" OR prevention OR "preventive care" OR "health outcome*" OR "behavioural outcome*" OR "psychological outcome*" OR " health measure*" OR "chronic disease measure*" OR function* OR adherence OR "clinical outcome*" OR wellbeing OR well-being OR "healthy ageing" OR "healthy aging" OR "active ageing" OR "active aging" OR "positive ageing" OR "positive aging" OR longevity OR "quality of life" OR "living well at home" OR "health equit*" OR loneliness OR lonely OR isolation OR "social connection" OR "social relations" OR "social relationship*" OR "social contacts" OR "social network*" OR "community participation" OR "neighbourhood participation" OR "neighbourhood participation" OR "neighbourhood participation") OR AB ("primary health" OR "primary care" OR prevention OR "preventive care" OR "health outcome*" OR "behavioural outcome*" OR "psychological outcome*" OR " health measure*" OR "chronic disease measure*" OR function* OR adherence OR "clinical outcome*" OR wellbeing OR well-being OR "healthy ageing" OR "healthy aging" OR "active ageing" OR "active aging" OR "positive ageing" OR "positive aging" OR longevity OR "quality of life" OR "living well at home" OR "health equit*" OR loneliness OR lonely OR isolation OR "social connection" OR "social relations" OR "social relationship*" OR "social contacts" OR "social network*" OR "community participation" OR "neighbourhood participation" OR "neighbourhood participation" OR "neighbourhood participation")	1,201,211
4	S1 AND S2	5,133
5	S3 AND S4	2,445

Cochrane Central Register of Controlled Trials (Wiley)

#	Search	Results
1	((community health NEXT worker*):ti,ab OR (community health NEXT nurs*):ti,ab OR health auxiliary:ti,ab OR (frontline health NEXT worker*):ti,ab OR (outreach NEXT worker*):ti,ab OR (lay health NEXT worker*):ti,ab OR promotora*:ti,ab OR (village health NEXT worker*):ti,ab	16,064

	OR (volunteer health NEXT worker*):ti,ab OR (voluntary health NEXT worker*):ti,ab OR (community health NEXT agent*):ti,ab OR (health NEXT promoter*):ti,ab OR (community health NEXT aide*):ti,ab OR (community health NEXT officer*):ti,ab OR (community health NEXT volunteer*):ti,ab OR (community health NEXT assistant*):ti,ab OR (community health NEXT promoter*):ti,ab OR (health extension NEXT worker*):ti,ab OR (village health NEXT volunteer*):ti,ab OR (close to community NEXT provider*):ti,ab OR (community based NEXT practitioner*):ti,ab OR (barefoot NEXT doctor*):ti,ab OR (community NEXT practitioner*):ti,ab OR (community based NEXT practitioner*):ti,ab OR promotoras de salud:ti,ab OR (barangay health NEXT worker*):ti,ab OR (basic health NEXT worker*):ti,ab OR Brigadista:ti,ab OR (community drug NEXT distributor*):ti,ab OR (community health NEXT agent*):ti,ab OR (community health NEXT promoter*):ti,ab OR (community health NEXT representative*):ti,ab OR (community resource NEXT person*):ti,ab OR (health NEXT promoter*):ti,ab OR kader*:ti,ab OR (outreach NEXT educator*):ti,ab OR Promotora:ti,ab OR Sevika:ti,ab OR (village health NEXT helper*):ti,ab OR Accompagnateur:ti,ab OR (accredited social health NEXT activist*):ti,ab OR Animator:ti,ab OR ASHA:ti,ab OR (auxiliary NEXT nurse*):ti,ab OR (auxiliary nurse NEXT midwi*):ti,ab OR Behvarz:ti,ab OR (care NEXT group*):ti,ab OR (care group NEXT volunteer*):ti,ab OR (community health care NEXT provider*):ti,ab OR (community healthcare NEXT provider*):ti,ab OR (community health extension NEXT worker*):ti,ab OR (family health NEXT worker*):ti,ab OR (family welfare NEXT assistant*):ti,ab OR (female community health NEXT volunteer*):ti,ab OR (health NEXT agent*):ti,ab OR (health NEXT assistant*):ti,ab OR (health extension NEXT worker*):ti,ab OR (health surveillance NEXT assistant*):ti,ab OR (lead NEXT mother*):ti,ab OR (malaria NEXT agent*):ti,ab OR (nutrition NEXT agent*):ti,ab OR Nutrition Counselor:ti,ab OR (nutrition NEXT counselor*):ti,ab OR (peer NEXT educator*):ti,ab OR Shasthya Shebika:ti,ab OR Socorrista:ti,ab OR (support NEXT worker*):ti,ab OR (care NEXT coordinator*):ti,ab OR (patient NEXT navigator*):ti,ab OR (health NEXT educator*):ti,ab OR (home health NEXT aide*):ti,ab OR (link NEXT worker*):ti,ab OR (social NEXT prescriber*):ti,ab OR (cultural NEXT broker*):ti,ab OR (health NEXT broker*):ti,ab OR (indigenous health NEXT professional*):ti,ab OR (informal NEXT helper*):ti,ab OR (lay health NEXT advisor*):ti,ab OR (lay community health NEXT worker*):ti,ab OR (health NEXT guide*):ti,ab OR (health NEXT liaison*):ti,ab OR (health education NEXT aide*):ti,ab OR (neighbourhood NEXT worker*):ti,ab OR (nonprofessional NEXT worker*):ti,ab OR (natural NEXT helper*):ti,ab OR navigator*:ti,ab OR (outreach NEXT worker*):ti,ab OR (peer NEXT counselor*):ti,ab OR (peer NEXT educator*):ti,ab)	
2	(aged or geriatric* or elder* or old* or ageing or aging):ti,ab or [mh "frail elderly"] or [mh aged] or [mh geriatrics] or [mh aging]	542,957
3	("primary health" OR "primary care" OR prevention OR "preventive care" OR ("health" NEXT outcome*) OR ("behavioural" NEXT outcome*) OR ("psychological" NEXT outcome*) OR (" health" NEXT measure*) OR ("chronic disease" NEXT measure*) OR function* OR adherence OR ("clinical" NEXT outcome*) OR wellbeing OR well-being OR "healthy	755,092

	ageing" OR "healthy aging" OR "active ageing" OR "active aging" OR "positive ageing" OR "positive aging" OR longevity OR "quality of life" OR "living well at home" OR ("health" NEXT equit*) OR loneliness OR lonely OR isolation OR "social connection" OR "social relations" OR ("social" NEXT relationship*) OR "social contacts" OR ("social" NEXT network*) OR "community participation" OR "neighbourhood participation" OR "neighbourhood participation" OR "neighbourhood participation")	
4	S1 AND S2	5,628
5	S3 AND S4	4,030

Embase (Ovid)

#	Search	Results
1	("community health worker*" or "community health nurs*" or "health auxiliary" or "frontline health worker*" or "outreach worker*" or "lay health worker*" or "promotora*" or "village health worker*" or "volunteer health worker*" or "voluntary health worker*" or "community health agent*" or "health promoter*" or "community health aide*" or "community health officer*" or "community health volunteer*" or "community health distributor*" or "community health surveyor*" or "community health assistant*" or "community health promoter*" or "health extension worker*" or "village health volunteer*" or "close-to-community provider*" or "community-based practitioner*" or "barefoot doctor*" or "Community Practitioner*" or "community-based practitioner*" or "promotoras de salud" or "agentes de saúde" or "rural health auxiliaries" or "Activista" or "Agente comunitario de salud" or "Agente comunitário de saúde" or "Animatrice" or "Barangay health worker*" or "Basic health worker*" or "Brigadista" or "Colaborador voluntario" or "Community drug distributor*" or "Community health agent*" or "Community health promoter*" or "Community health representative*" or "Community resource person*" or "Female multipurpose health worker*" or "Health promoter*" or "Kader*" or "Outreach educator*" or "Promotora" or "Shastho shebika" or "Shastho karmis" or "Sevika" or "Village health helper*" or "Village drug-kit manager*" or "Accompagnateur" or "Accredited Social Health Activist*" or "Animator" or "ASHA" or "Auxiliary Nurse*" or "Auxiliary Nurse-midwi*" or "Bridge-to-Health Team" or "Behvarz" or "Care Group*" or "Care Group Volunteer*" or "Community Case Management Worker*" or "Community Health Care Provider*" or "Community HealthCare Provider*" or "Community Health Extension Worker*" or "Community Surveillance Volunteer*" or "Family Health Worker*" or "Family Welfare Assistant*" or "Female Community Health Volunteer*" or "Health Agent*" or "Health Assistant*" or "Health Extension Worker*" or "Health Surveillance Assistant*" or "Lead Mother*" or "Malaria Agent*" or "Mobile Clinic Team*" or "Nutrition Agent*" or "Nutrition Counselor" or "Nutrition Counselor*" or "Peer Educator*" or "Shasthya Shebika" or "Socorrista" or "support worker*" or "care coordinator*" or "patient navigator*" or "health educator*" or "home health aide*" or "link worker*" or "social prescriber*" or "cultural broker*" or "health broker*" or "indigenous health professional*" or "indigenous lay worker*" or "informal helper*" or "lay health advisor*" or "neighbourhood-based public health	47,980

	worker*" or "lay community health worker*" or "health guide*" or "health hostess*" or "health liaison*" or "health education aide*" or "neighbourhood worker*" or "neighbourhood representative*" or "nonprofessional worker*" or "natural helper*" or "navigator*" or "outreach worker*" or "peer counselor*" or "peer educator*").ab,ti.	
2	exp Aged/ or Geriatrics/ or Aging/ or geriatric*.ti. or elder*.ti. or "old age".ti. or "older adult".ti. or "older people".ti. or "older person".ti. or "older men".ti. or "older women".ti. or "older population".ti. or ageing.ti. or aging.ti.	4,104,656
3	("primary health" or "primary care" or prevention or "preventive care" or "health outcome*" or "behavioural outcome*" or "psychological outcome*" or "health measure*" or "chronic disease measure*" or function* or adherence or "clinical outcome*" or wellbeing or well-being or "healthy ageing" or "healthy aging" or "active ageing" or "active aging" or "positive ageing" or "positive aging" or longevity or "quality of life" or "living well at home" or "health equity*" or loneliness or lonely or isolation or "social connection" or "social relations" or "social relationship*" or "social contacts" or "social network*" or "community participation" or "neighbourhood participation" or "neighbourhood participation" or "neighbourhood participation").ab,ti.	8,236,614
4	S1 AND S2	7,147
5	S3 AND S4	3,522

ASSIA (Proquest)

#	Search	Results
1	abstract("community health worker*" OR "community health nurs*" OR "health auxiliary" OR "frontline health worker*" OR "outreach worker*" OR "lay health worker*" OR promotora* OR "village health worker*" OR "volunteer health worker*" OR "voluntary health worker*" OR "community health agent*" OR "health promoter*" OR "community health aide*" OR "community health officer*" OR "community health volunteer*" OR "community health distributor*" OR "community health surveyor*" OR "community health assistant*" OR "community health promoter*" OR "health extension worker*" OR "village health volunteer*" OR "close-to-community provider*" OR "community-based practitioner*" OR "barefoot doctor*" OR "Community Practitioner*" OR "community-based practitioner*" OR "promotoras de salud" OR "agentes de saúde" OR "rural health auxiliaries" OR Activista OR "Agente comunitario de salud" OR "Agente comunitário de saúde" OR Animatrice OR "Barangay health worker*" OR "Basic health worker*" OR Brigadista OR "Colaborador voluntario" OR "Community drug distributor*" OR "Community health agent*" OR "Community health promoter*" OR "Community health representative*" OR "Community resource person*" OR "Female multipurpose health worker*" OR "Health promoter*" OR Kader* OR "Outreach educator*" OR Promotora OR "Shastho shebika" OR "Shastho karnis" OR Sevika OR "Village health helper*" OR "Village drug-kit manager*" OR Accompagnateur OR "Accredited Social Health Activist*" OR Animator OR ASHA OR "Auxiliary Nurse*" OR "Auxiliary Nurse-midwi*" OR "Bridge-to-Health Team" OR Behvarz OR "Care Group*" OR	68,561

"Care Group Volunteer*" OR "Community Case Management Worker*" OR "Community Health Care Provider*" OR "Community HealthCare Provider*" OR "Community Health Extension Worker*" OR "Community Surveillance Volunteer*" OR "Family Health Worker*" OR "Family Welfare Assistant*" OR "Female Community Health Volunteer*" OR "Health Agent*" OR "Health Assistant*" OR "Health Extension Worker*" OR "Health Surveillance Assistant*" OR "Lead Mother*" OR "Malaria Agent*" OR "Mobile Clinic Team*" OR "Nutrition Agent*" OR "Nutrition Counselor" OR "Nutrition Counselor*" OR "Peer Educator*" OR "Shasthya Shebika" OR Socorrista OR "support worker*" OR "care coordinator*" OR "patient navigator*" OR "health educator*" OR "home health aide*" OR "link worker*" OR "social prescriber*" OR "cultural broker*" OR "health broker*" OR "indigenous health professional*" OR "indigenous lay worker*" OR "informal helper*" OR "lay health advisor*" OR "neighbourhood-based public health worker*" OR "lay community health worker*" OR "health guide*" OR "health hostess*" OR "health liaison*" OR "health education aide*" OR "neighbourhood worker*" OR "neighbourhood representative*" OR "nonprofessional worker*" OR "natural helper*" OR navigator* OR "outreach worker*" OR "peer counselor*" OR "peer educator*") OR title("community health worker*" OR "community health nurs*" OR "health auxiliary" OR "frontline health worker*" OR "outreach worker*" OR "lay health worker*" OR promotora* OR "village health worker*" OR "volunteer health worker*" OR "voluntary health worker*" OR "community health agent*" OR "health promoter*" OR "community health aide*" OR "community health officer*" OR "community health volunteer*" OR "community health distributor*" OR "community health surveyor*" OR "community health assistant*" OR "community health promoter*" OR "health extension worker*" OR "village health volunteer*" OR "close-to-community provider*" OR "community-based practitioner*" OR "barefoot doctor*" OR "Community Practitioner*" OR "community-based practitioner*" OR "promotoras de salud" OR "agentes de saúde" OR "rural health auxiliaries" OR Activista OR "Agente comunitario de salud" OR "Agente comunitário de saúde" OR Animatrice OR "Barangay health worker*" OR "Basic health worker*" OR Brigadista OR "Colaborador voluntario" OR "Community drug distributor*" OR "Community health agent*" OR "Community health promoter*" OR "Community health representative*" OR "Community resource person*" OR "Female multipurpose health worker*" OR "Health promoter*" OR Kader* OR "Outreach educator*" OR Promotora OR "Shastho shebika" OR "Shastho karmis" OR Sevika OR "Village health helper*" OR "Village drug-kit manager*" OR Accompagnateur OR "Accredited Social Health Activist*" OR Animator OR ASHA OR "Auxiliary Nurse*" OR "Auxiliary Nurse-midwi*" OR "Bridge-to-Health Team" OR Behvarz OR "Care Group*" OR "Care Group Volunteer*" OR "Community Case Management Worker*" OR "Community Health Care Provider*" OR "Community HealthCare Provider*" OR "Community Health Extension Worker*" OR "Community Surveillance Volunteer*" OR "Family Health Worker*" OR "Family Welfare Assistant*" OR "Female Community Health Volunteer*" OR "Health Agent*" OR "Health Assistant*" OR "Health Extension Worker*" OR "Health Surveillance Assistant*" OR "Lead Mother*" OR	
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	"Malaria Agent*" OR "Mobile Clinic Team*" OR "Nutrition Agent*" OR "Nutrition Counselor" OR "Nutrition Counselor*" OR "Peer Educator*" OR "Shasthya Shebika" OR Socorrista OR "support worker*" OR "care coordinator*" OR "patient navigator*" OR "health educator*" OR "home health aide*" OR "link worker*" OR "social prescriber*" OR "cultural broker*" OR "health broker*" OR "indigenous health professional*" OR "indigenous lay worker*" OR "informal helper*" OR "lay health advisor*" OR "neighbourhood-based public health worker*" OR "lay community health worker*" OR "health guide*" OR "health hostess*" OR "health liaison*" OR "health education aide*" OR "neighbourhood worker*" OR "neighbourhood representative*" OR "nonprofessional worker*" OR "natural helper*" OR navigator* OR "outreach worker*" OR "peer counselor*" OR "peer educator*")	
2	abstract("Aged" OR "Geriatrics" OR "Aging" OR "geriatric*" OR "elder*" OR "old age" OR "older adult*" OR "older people*" OR "older person*" OR "older men" OR "older women" OR "older population" OR "ageing" OR "aging") OR title("Aged" OR "Geriatrics" OR "Aging" OR "geriatric*" OR "elder*" OR "old age" OR "older adult*" OR "older people*" OR "older person*" OR "older men" OR "older women" OR "older population" OR "ageing" OR "aging")	652,773
3	abstract("primary health" OR "primary care" OR "prevention" OR "preventive care" OR "health outcome*" OR "behavioural outcome*" OR "psychological outcome*" OR "health measure*" OR "chronic disease measure*" OR "function*" OR "adherence" OR "clinical outcome*" OR "wellbeing" OR "well-being" OR "healthy ageing" OR "healthy aging" OR "active ageing" OR "active aging" OR "positive ageing" OR "positive aging" OR "longevity" OR "quality of life" OR "living well at home" OR "health equity*" OR "loneliness" OR "lonely" OR "isolation" OR "social connection" OR "social relations" OR "social relationship*" OR "social contacts" OR "social network*" OR "community participation" OR "neighbourhood participation" OR "neighbourhood participation" OR "neighbourhood participation") OR title("primary health" OR "primary care" OR "prevention" OR "preventive care" OR "health outcome*" OR "behavioural outcome*" OR "psychological outcome*" OR "health measure*" OR "chronic disease measure*" OR "function*" OR "adherence" OR "clinical outcome*" OR "wellbeing" OR "well-being" OR "healthy ageing" OR "healthy aging" OR "active ageing" OR "active aging" OR "positive ageing" OR "positive aging" OR "longevity" OR "quality of life" OR "living well at home" OR "health equity*" OR "loneliness" OR "lonely" OR "isolation" OR "social connection" OR "social relations" OR "social relationship*" OR "social contacts" OR "social network*" OR "community participation" OR "neighbourhood participation" OR "neighbourhood participation" OR "neighbourhood participation")	5,074,738
4	S1 AND S2	2,189
5	S3 AND S4	968

Global Index Medicus

Total records retrieved: 462 records

"community health worker*" OR "community health nurs*" OR "health auxiliary" OR "frontline health worker*" OR "outreach worker*" OR "lay health worker*" OR promotora* OR "village health worker*" OR "volunteer health worker*" OR "voluntary health worker*" OR "community health agent*" OR "health promoter*" OR "community health aide*" OR "community health officer*" OR "community health volunteer*" OR "community health assistant*" OR "community health promoter*" OR "health extension worker*" OR "village health volunteer*" OR "close to community provider*" OR "community based practitioner*" OR "barefoot doctor*" OR "community practitioner*" OR "community based practitioner*" OR "promotoras de salud" OR "barangay health worker*" OR "basic health worker*" OR Brigadista OR "community drug distributor*" OR "community health agent*" OR "community health promoter*" OR "community health representative*" OR "community resource person*" OR "health promoter*" OR kader* OR "outreach educator*" OR Promotora OR Sevika OR "village health helper*" OR Accompagnateur OR "accredited social health activist*" OR Animator OR ASHA OR "auxiliary nurse*" OR "auxiliary nurse midwi*" OR Behvarz OR "care group*" OR "care group volunteer*" OR "community health care provider*" OR "community healthcare provider*" OR "community health extension worker*" OR "family health worker*" OR "family welfare assistant*" OR "female community health volunteer*" OR "health agent*" OR "health assistant*" OR "health extension worker*" OR "health surveillance assistant*" OR "lead mother*" OR "malaria agent*" OR "nutrition agent*" OR "Nutrition Counselor" OR "nutrition counselor*" OR "peer educator*" OR "Shasthya Shebika" OR Socorrista OR "support worker*" OR "care coordinator*" OR "patient navigator*" OR "health educator*" OR "home health aide*" OR "link worker*" OR "social prescriber*" OR "cultural broker*" OR "health broker*" OR "indigenous health professional*" OR "informal helper*" OR "lay health advisor*" OR "lay community health worker*" OR "health guide*" OR "health liaison*" OR "health education aide*" OR "neighbourhood worker*" OR "nonprofessional worker*" OR "natural helper*" OR navigator* OR "outreach worker*" OR "peer counselor*" OR "peer educator*" AND Aged OR Geriatrics OR Aging OR geriatric* OR elder* OR "old age" OR "older adult*" OR "older people*" OR "older person*" OR "older men" OR "older women" OR "older population" OR ageing OR Aging

Policy Commons

A few search queries were attempted, most of which were too complex for the site to return results. Thus, a simplified search was performed. All results were reviewed and papers meeting inclusion criteria based on title and abstract were added to Rayyan for further screening.

Advanced Search: (“community health workers” OR “lay health workers”) in summary AND (aged OR old OR older OR elder OR elderly OR geriatric) in summary

Total records returned: 76

Total records retrieved: 0

Grey Literature

CADTH

As suggested in “undertaking a scoping review: a practical guide for nursing and midwifery students, clinicians, researchers, and academics”, the author utilized the CADTH ‘Grey

Matters: a practical tool for searching health-related grey literature' tool to support their efforts to retrieve grey literature in a comprehensive approach (43). Using the checklist, the author navigated to the relevant topic areas and searched for "community health worker" on each listed website under each relevant topic area. If the website returned results for this search, the author screened the title and abstract or summary of each returned result against the review's inclusion criteria. Results that included search terms for community health worker and appeared to be potentially focused on older people were added to Rayyan for secondary screening.

Websites that returned potentially relevant sources based on the title and abstract or summary screening included:

Biomed Central. ISRCTN Registry. (104)

Search: "community health workers"

Total records returned: 86

Total records retrieved: 1

Federal Reserve Bank of St. Louis. Economic Research Division. Ideas database (IDEAS). (105)

Search: "community health workers" in title AND ("aged OR old OR older OR elder OR elderly OR geriatric) in title

Total records returned: 6

Total records retrieved: 3

Lund University Libraries. Directory of Open Access Journals (DOAJ). (106)

Search: "community health workers" AND "older adults"

Total records returned: 16

Total records retrieved: 6

Grey Literature Databases

OpenGrey (MySQL file from DANS EASY Archive) (107)(108)

Search term: "community health worker" OR "community health workers" OR "lay health worker" OR "lay health workers"

Total records returned: 8

Total records retrieved: 0

Targeted Organizations and Websites

World Health Organization (109)

Search: ("community health workers" OR "lay health workers") AND (aged OR old OR older OR elder OR elderly OR geriatrics)

Total records returned: 399
Total records retrieved: 2

Community Health Impact Coalition (110)

The Community Health Impact Coalition maintains an archive of papers on CHWs; the database is organized by keyword or topic, issue number (date), name of the study or paper, and method of research and includes a brief summary and commentary on each article. The titles and summaries of all papers included in this database were reviewed. Potentially relevant papers, those containing key terms related to or synonymous with “community health worker” and “older people” in the title or summary, were added to Rayyan for further review.

Total records returned: 821
Total records retrieved: 5

CHW Central (111)

A few search queries were attempted on CHW Central, most of which were too complex for the site to return results. A simplified search was performed, returning five pages of results. All pages were reviewed, and papers meeting inclusion criteria based on title and abstract were added to Rayyan for further screening.

Search: “community health worker” AND “older adult”

Total records returned: 22
Total records retrieved: 11

PATH (45)

A few search queries were attempted on PATH, most of which were too complex for the site to return and results. Two simplified searches were performed.

Search: “community health worker”

Total records returned: 78
Total records retrieved: 0

Search: “community health workers”

Total records: 224
Total records retrieved: 0

Exemplars in Global Health (112)

A few search queries were attempted on Exemplars, most of which were too complex for the site to return and results. A simplified search was performed.

Search: “community health workers”

Total records returned: 281
Total records retrieved: 0

Commonwealth Fund (113)

A simplified search was performed, returning fifteen pages of results. All pages were reviewed and papers meeting inclusion criteria based on title and abstract were added to Rayyan for further screening.

Search: “community health workers”

Total records returned: 134
Total records retrieved: 2

Robert Wood Johnson Foundation (114)

A simplified search was performed, returning fifteen pages of results. All pages were reviewed.

Search: “community health workers”

Total records returned: 53
Total records retrieved: 0

The John A. Hartford Foundation (115)

A simplified search was performed, returning fifteen pages of results. While no papers were added to Rayyan from a search on this organization’s site, several briefs and webinars led the reviewer to other sites (e.g., bettercareplaybook.org and CAPABLE National Center) on which relevant papers were identified and added to Rayyan.

Search: “community health workers”

Total records returned: 126
Total records retrieved: 0

Capablehealthcenter.org (116)

On this site, the author navigated to their publications section and reviewed all publications by year. Papers potentially meeting inclusion criteria based on title were located and then papers’ abstracts were reviewed. Papers meeting inclusion criteria after title and abstract review were added to Rayyan for further screening.

Total records returned: 34
Total records retrieved: 2

Bettercareplaybook.org (117)

The Community Health Worker Programs Playbook Collection was located on the Playbook site. The collection, “explores interventions that address the needs of people with complex needs by curating available peer-reviewed research, case studies, tools, and on-the-ground perspective” was reviewed in full. Results potentially meeting inclusion criteria were then retrieved and their abstracts reviewed. Results meeting inclusion criteria based on title and abstract were added to Rayyan for further screening.

Total records returned: 23

Total records retrieved: 8

The American Geriatrics Society (118)

A simplified search was performed. No results met the criteria for inclusion; however, the American Geriatrics Society 2023 Annual Scientific Meeting Abstract Supplement was used to identify five potentially eligible papers based on their poster abstracts within the supplement. None of the papers could be located. The titles and authors were noted and set aside. Due to time constraints, the reviewer was not able to contact the authors to request the published papers.

Search: “community health workers”

Total records returned: 7

Total records retrieved: 0

Muso (119)

The author navigated to the research section of the site and reviewed all “major research studies” (four studies indicated) and all “published studies” (fourteen studies listed) against the inclusion criteria.

Total records returned: 18

Total records retrieved: 0

Possible+ (120)

The author navigated to the research section of the site and reviewed all papers under the “mental health” and “community health” sections against the inclusion criteria. Papers under the “reproductive, maternal, & child health” section were not reviewed.

Total records returned: 6

Total records retrieved: 0

Project ECHO (121)

The author navigated to the resource library on the site, which included over 500 hundred peer-reviewed research papers on Project ECHO. I performed an advanced search that returned 30 results. A particular result on the site led the reviewer to a brief on continuity and coordination of care by the World Health Organization that featured case studies of programs and services for older adults in various nations globally. The references of those case studies

were located and resulted in the reviewer identifying additional papers that were uploaded into Rayyan from other sources.

Search: “community health workers” AND “older adults”

Total records returned: 30

Total records retrieved: 1

National Institute of Aging (122)

A simplified search was performed. One of the three results directed the reviewer to a page of the National Institute of Aging’s Funded Active Alzheimer’s and Related Dementias Clinical Trials and Studies. On that page, two papers were retrieved that potentially met inclusion criteria based on title and abstract. All papers meeting inclusion criteria based on title and abstract were added to Rayyan for further screening.

Search: “community health workers”

Total records returned: 3

Total papers retrieved: 3

Appendix III: Roles and sub-roles of CHWs

Roles
1. Advocating for Individuals and Communities 2. Building Individual and Community Capacity 3. Care Coordination, Case Management, and System Navigation 4. Conducting Outreach 5. Cultural Mediation Among Individuals, Communities, and Health and Social Service Systems 6. Implementing Individual and Community Assessments 7. Participating in Evaluation and Research 8. Providing Coaching and Social Support 9. Providing Culturally Appropriate Health Education and Information 10. Providing Direct Service
Sub-roles
1. Advocating for the needs and perspectives of communities 2. Building community capacity 3. Building health literacy and cross-cultural communication 4. Building individual capacity 5. Case-finding/recruitment of individuals, families, and community groups to services and systems 6. Conducting health promotion and disease prevention education in a manner that matches linguistic and cultural needs of participants or community 7. Conducting policy advocacy 8. Connecting to resources and advocating for basic needs 9. Documenting and tracking individual and population level data 10. Educating individuals and communities about how to use health and social service systems 11. Educating systems about community perspectives and cultural norms 12. Engaging in evaluating CHW services and programs 13. Facilitating transportation to services and helping address barriers to services 14. Follow-up on health and social service encounters with individuals, families, and community groups 15. Home visiting to provide education, assessment, and social support 16. Identifying and engaging community members as research partners, including community consent processes 17. Informing people and systems about community assets and challenges 18. Making referrals and providing follow-up 19. Meeting basic needs 20. Motivating and encouraging people to obtain care and other services 21. Participating in care coordination and/or case management 22. Participating in design, implementation, and interpretation of community-level assessments 23. Participating in design, implementation, and interpretation of individual-level assessments 24. Participating in evaluation and research 25. Planning and/or leading support groups 26. Presenting at local agencies and community events 27. Providing basic screening tests 28. Providing basic services 29. Providing individual support and coaching 30. Providing necessary information to understand and prevent diseases and to help people manage health conditions 31. Supporting self-management of disease prevention and management of health conditions 32. Training and building individual capacity with peers and among CHW groups

Fig. 5 Roles and sub-roles of CHWs. Adapted from *Rosenthal et al. (2014-2022)* (123)

Appendix IV: CHW Common Indicators

Indicators of CHW program performance adapted from the CHW Center for Researcher + Evaluation (124). Bolded indicators represent those the author extracted data on, where feasible.

- **Indicator #1: CHW compensation, benefits, and advancement**
- **Indicator #2: CHW enactment of the 10 core roles**
- **Indicator #3: CHW-facilitated referrals**
- **Indicator #4: CHW involvement in decision- and policy-making**
- **Indicator #5: CHW integration into teams**
- **Indicator #6: Participant self-reported health status**
- **Indicator #7: Participant health and social needs**
- Indicator #8: Participant social support
- **Indicator #9: Participant empowerment**
- Indicator #10: Policy and systems change (program level)
- Indicator #11: Policy and systems change (state level)
- **Indicator #12: Supportive and reflective supervision**

Appendix V: Table 2: Information about roles of CHWs in included papers

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First author (year)	Title, Recruitment and Employment	Training, Supervision, Team Integration and Decision-Making	Model of System Integration	Role(s), numerically classified in Fig. 5	Sub-role(s), numerically classified in Fig. 5
Han et al. (2021)	Community health worker, recruited from a community organization and employed by a local community-based organization	CHW received 12 hours of training on the intervention by the study team. Supervision was NR. † Integration into teams † Involvement in decision-making	†	Role numbers: 2, 3, 8, 9, and 10	Sub-role numbers: 3, 4, 10, 14, 15, 18, 20, 21, 29, and 30
Hodges et al. (2023)	Community health worker, employed by clinic staff members and the Indiana Geriatrics Education and Training Center (GETC) † Recruitment method	CHWs were trained by a multidisciplinary team, using didactic and case-based learning as well as online self-paced modules. Training included education on common geriatric syndromes, the 4Ms (mentation, mobility, medications, and what matters most) of the age-friendly care framework (125), and local community resources. Additional topics included patient and caregiver education and patient-centred communication. CHWs were trained to screen participants for falls, depression, and cognitive impairment and to record screening data collected in a database alongside information about education and resource referrals provided. Supervision was NR. The team understood CHWs' role(s). CHWs were involved in some stages of the research and evaluation.	• Community-academic partnership • Employment within healthcare	Role numbers: 3, 4, 8, 9, and 10	Sub-role numbers: 6, 8, 9, 13, 15, 18, 20, 21, 27, 29, and 30
Jacob et al. (2006)	Community health worker, recruited based on their many years of experience working as community health aides in the area † Employment	The interactive training module, developed by the 10/66 Dementia Research Group, lasted over 2 hours and included an overview of dementia with accompanying notes for the CHWs. Supervision was NR. † Integration into teams CHWs were not involved in the research and evaluation.	• Employment within healthcare	Role number: 4	Sub-role number: 5

Kloseck et al. (2017)	Peer educator, recruited during a town hall meeting where interested community members were invited to establish contact. All peer educators were retired.	Interested community members were trained in 5 osteoporosis modules delivered in 1-hour sessions by local experts over 2 weeks. Additionally, they attended an education session focused on enhancing their public presentation skills delivered by the project coordinator. Supervision was NR. † Integration into teams CHWs were involved in some stages of the research and evaluation.	• Community-clinical linkages	Role numbers: 2, 3, 6, 7, 8, and 9	Sub-role numbers: 2, 4, 6, 14, 15, 18, 20, 21, 29, 30, and 31
Litzelman et al. (2017)	Care coordinator assistants (CCAs), recruited into a collaborative care model and employed at the Indiana University Center for Aging Research's Aging Brain Care Program to provide care to patients and caregivers at home.	Training consisted of four workshops 4-hours in length each, 2 simulation sessions 3 hours in length each, engagement with an electronic health record clinician decision support tool, and monthly case conferences. Training prepared CCAs to conduct guided conversations to introduce the concept of ACP, assess level of patient ability and readiness to make advance care plans and to assist patients in identifying and documenting substitute decision makers and care plans. CCAs were supervised and supported by the collaborative care team, which included a registered nurse (NP), social workers, a medical director, and a palliative care team. The ACP training team met monthly to review information being documented in the EHR, discuss challenging cases, and encourage peer coaching. The team understood CHWs' role(s). As part of their role/job, people who influence change in their community sought CHWs' opinions and participation.	• Community-academic partnership • Employment within healthcare	Role numbers: 3 and 8	Sub-role numbers: 9, 18, 21, and 29
Murayama et al. (2020)	Community health worker, recruited from among CHWs	Established CHWs are residents that applied to be a CHW. As a part of their application, residents had to attend a municipality sponsored training	• Coordination by public	Role numbers: 2, 6, 7, 8, and 9	Sub-role numbers: 2, 3, 4, 6, 22, 23, 24, 25, 27, and 29

	already established in each district. All CHWs were volunteers.	course supervised by public health nurses and dietitians. Additionally, CHWs received 6 total hours of training specific to the study intervention. † Integration into teams As part of their role/job, people who influence change in their community sought CHWs' opinions and participation. CHWs were also involved in all stages of research and evaluation.	health departments		
Neto et al. (2021)	Community health worker, recruited from and employed by three community primary care units (PCUs).	CHWs were trained using an adapted specialist training course designed for primary health care providers on the health of older people. The course covered 5 topics: the health of dependent older people; identifying risky situations; essential health and social support for dependent older people; and caregiver support. The course used CHWs' self-evaluation responses before the start of training to further tailor the curriculum. Classroom-based training consisted of 7 half-day sessions led by doctors and nurses with specialist background in gerontology and geriatrics. 12 hours of training focused on practical activities, consisting of house visits to eligible older people. Situations encountered during home visits were later used to develop training simulations, role-plays and group discussion. CHWs were supervised throughout the training course. The team understood CHWs' role(s). CHWs were involved in some stages of the research and evaluation.	• Employment within healthcare	Role numbers: 3, 4, 6, and 10	Sub-role numbers: 9, 15, 23, and 27
Oetzel et al. (2024)	Tuakana, recruited by 5 health and social service providers who selected tuakana based on effective peer educator attributes for older people [40] and attributes within	Orientation activities were delivered by the research team, including local community researchers. Orientation included: (a) identifying important skills of tuakana-teina peer support; (b) mātāpono (principles) and uara (values); (c) types of social support; (d) Māori forms of	• Community-clinical linkages • Community-academic partnership	Role numbers: 1, 2, 5, 8, and 9	Sub-role numbers: 1, 2, 3, 4, 6, 11, 20, 24, 29, 30, and 31

	Te Ao Māori (Māori worldview). All Tuakana were volunteers.	communication; (e) communication strategies for the tuakana in their conversations with teina; and (f) a resource kete (basket) consisting of social and health services. The training programme comprised four 4-hour sessions. Booster sessions were delivered by community researchers or the university team for specific tuakana if needed. Tuakana conversations with teina were audio-recorded to complete a fidelity check of tuakana communication. Supervision was NR. The team understood CHWs' role(s). As part of their role/job, people who influence change in their community sought CHWs' opinions and participation. CHWs were also involved in all stages of research and evaluation.			
Ramos-Cerqueira et al. (2005)	Community health worker, already employed by the local government with a defined list of community members that fell under their responsibility.	An initial 3-hour training session was conducted using "audio-visual resources and vignettes of mild, moderate, and severe dementia cases adapted from a previous study, followed by group discussions" to educate CHWs on the clinical features of dementia and the most common causes and clinical course. Supervision was NR. The team understood CHWs' role(s). CHWs were involved in some stages of the research and evaluation.	• Coordination by public health departments	Role number: 4	Sub-role number: 5
Rovner et al. (2018)	Community health worker † Recruitment method † Employment	A two-day training workshop was followed by assignment of training cases that were audiotaped, reviewed, and rated. A 30-minute phone supervision meeting was provided following each of these rated sessions, for a total of 15 supervised treatment sessions. The CHW had to meet satisfactory levels of competence on his/her last 2 training cases before starting the clinical trial.	†	Role numbers: 2, 3, 6, 8, 9, and 10	Sub-role numbers: 3, 4, 6, 9, 15, 21, 23, 29, 30, and 31

		† Integration into teams † Involvement in decision-making			
Steinman et al. (2023)	Promotores, recruited from and employed by a community-based social service organization	CHWs were trained on the PEARLS model and then supplemental coaching calls were performed in which sample problem-solving treatment worksheets were discussed to strengthen CHW skill-building in using the PHQ-9 and to support person-centred and participant-directed PST and BA care. Coaching was provided "by the UW [University of Washington] focused on the implementation team (promotores, program manager, licensed clinical social worker clinical supervisor, and community-based organization leadership), moving from weekly to biweekly to monthly over the course of the 3-year grant" (53). Clinical supervision included weekly review of all CHW client cases by the program manager and coaches in addition to weekly clinical supervision with the psychiatric consultant and therapist who focused on a handful of CHWs' complex client cases. CHWs' attempts to establish contact(s) with the respective providers were not acknowledged or reciprocated. CHWs were involved in some stages of the research and evaluation.	• Community-clinical linkages • Community-academic partnership	Role numbers: 1, 2, 3, 4, 5, 7, 8, 9, and 10	Sub-role numbers: 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 24, 25, 26, 27, 29, 30, 31, and 32
Wang et al. (2013)	Volunteer coaches, recruited from the community based on their regular voluntary assistance at the clinic and by recommendation of their community leader or Primary Health Clinic (PHC) nurse manager.	All PHC volunteers had >1 years' experience at the Rural PHC, 12 hours of required formal training, and 24 hours of service experience at the PHC. Intervention specific training included 26 hours of educational programmes, including six 4-hour classes and one 2-hour evaluation. Volunteer coaches also had to pass a comprehensive post-test and mock interview.	• Community-clinical linkages • Community-academic partnership	Role numbers: 2, 8, and 9	Sub-role numbers: 3, 4, 6, 15, 30, and 31

		Volunteer coaches were supervised but details could not be determined. † Integration into teams CHWs were not involved in the research and evaluation.			
† = could not determine or not reported					

Appendix VI: PRISMA Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Page 1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page 5
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Page 11
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Page 13
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Page 13
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Page 15-16
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Page 87-101
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Page 16-17
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Page 17
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Page 17
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Not reported
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Not applicable
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Not applicable
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Not applicable
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Not applicable

Section and Topic	Item #	Checklist item	Location where item is reported
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Page 17-19
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Not applicable
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Not applicable
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Not applicable
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Not applicable
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Not applicable
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Page 20
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Not reported
Study characteristics	17	Cite each included study and present its characteristics.	Page 22-30
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Not applicable
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Page 20-56, 59, 105-110
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Not applicable
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Not applicable
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Not applicable
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Not applicable
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Not applicable
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Not applicable
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Page 57
	23b	Discuss any limitations of the evidence included in the review.	Not applicable

Section and Topic	Item #	Checklist item	Location where item is reported
	23c	Discuss any limitations of the review processes used.	Page 69
	23d	Discuss implications of the results for practice, policy, and future research.	Page 57-69
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Page 13
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Page 13
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Not reported
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Page 73
Competing interests	26	Declare any competing interests of review authors.	Page 73
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Not reported

Adapted from Page et al. (2021) (126).

Appendix VII: Supplemental Participant and CHW Characteristics

First author (year)	Sample Size	Participant Age	Participant Gender	Participant Race/Ethnicity	Participant relational status reported?	Participant living arrangement reported?	Participant economic status reported?	Participant insured status, including payor information, reported when applicable?	# of Paid/Unpaid CHWs (if not specified, just list number)	CHW Age	CHW Gender	Hours of Supervision	CHW Feedback on Training and Supervision Quality
Han et al. (2021)	20	Mean age 81.5	90% female	Korean	†	†	No	Yes	1	†	†	†	†
Hodges et al. (2023)	358 participants	Mean age of 71.29 years	70.3% female	97.6% non-Hispanic; 46.7% Black	†	†	Yes	Yes	2 paid	†	†	†	†
Jacob et al. (2006)	1000	Avg. age was 72.7 (SD 5.8) years	54.6% female	†	Yes	Yes	Yes	†	4	Mean age was 44.5 (SD 8.2)	100% female	†	†
Kloseck et al. (2017)	105	80.5 years	88.6% female	†	Yes	†	†	†	10 completed training but only 6 continued with the study, all unpaid	between 74 and 90 years	all female	†	†
Litzelman et al. (2017)	818	74.2 years old (mean)	78% female	51% African American; 43% Caucasian	†	†	†	Yes	20 paid	†	†	†	†
Murayama et al. (2020)	84	~69 years average	~26% female	†	†	Yes	Yes	†	All unpaid. 37 total.	66.7	97.3% female	†	†

Neto et al. (2021)	76 CHWs eligible; 72 participated in classroom-based sessions; 58 participated in practical home visits	Aged 70 and over	†	†	†	†	Yes	†	72	Avg. age of female CHWs was 47 (47 were women) ; avg. age of male CHWs was 44 (11 were men)	65.3% female	†	Study indicated CHWs unanimously responded positively to the training in terms its usefulness. Some suggested increasing the numbers of classes increase their knowledge of and confidence in dealing with more complex and technically challenging issues (Neto).
Oetzel et al. (2024)	113 kaumātua recruited; 86 completed the programme	72.35 (SD = 8.23)	76% male	Māori	Yes	Yes	†	†	21	†	†	†	†
Ramos-Cerqueira et al. (2005)	2,222	All participants were >65 years; avg.	†	Caucasian	†	†	†	†	25 paid CHWs	CHWs ranged in age	100% female	†	†

		or mean age not specified								from 25-40			
Rovner et al. (2018)	221	Mean [SD] age 75.8 [7.0] years	79% female	Self-identified black race	Yes	†	†	†	†	†	†	24 hr training workshop followed by training cases and a 30-minute phone supervision meeting following each of 15 supervised treatment sessions.	†
Steinman et al. (2023)	†	†	†	†	†	†	†	†	†	†	†	†	†
Wang et al. (2013)	152 older adults	65-80 (mean age 73)	69% Female	91% Latino	†	†	†	†	2	†	†	Weekly, then biweekly, then monthly coaching calls. Clinical supervision included weekly internal facilitation and weekly clinical supervision	CHWs found external supervision to be helpful.

												with the psychiatric consultant and therapist.	
Wang et al. (2013)	62	71.3	54.8% female	†	†	Yes	†	†	11	45.3	54.5% female	†	†
† = not reported, not specified, not applicable, or unclear if applicable													

