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Rehabilitation, reablement, and restorative care approaches in the aged care sector: a scoping review of systematic reviews

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Abstract

Background Ageing populations are set to drive up demand for aged care services, placing strain on economies funding social care systems. Rehabilitation, reablement, and restorative care approaches are essential to this demographic shift as they aim to support independent function and quality of life of older people. Understanding the impact of these approaches requires nuanced insights into their definitions, funding, and delivery within the aged care context. This scoping review mapped and compared systematic review-level research on rehabilitation, reablement, and restorative care approaches within aged care with the aim of determining definitional clarity, key themes, and the professional groups delivering each approach.

Methods Nine databases were searched (2012 to September 2023) to identify English-language systematic reviews on aged care-based rehabilitation, reablement and/or restorative care. Two reviewers independently screened studies following predetermined eligibility criteria. Only reviews reporting quality appraisal findings were eligible. Data charting and synthesis followed the Arksey and O'Malley approach and are reported according to PRISMA-ScR guidelines.

Results Forty-one reviews met inclusion criteria. Most (68%) reported on rehabilitation in aged care, and eight (20%) combined the approaches. Only 14 reviews (34%) defined the approach they described. Reviews centred on services for older people in the home or community ($n=15$), across a mix of settings including community, hospital, and residential care ($n=10$). Ten distinct themes highlight the importance of multidisciplinary teams, allied health, risk of falls, hip fracture, reduced functional independence, and specific types of interventions including physical activity, technology, cognitive rehabilitation, goal setting, and transition care. Most reviews described the role of occupational therapists ($n=22$), physiotherapists ($n=20$) and nurses ($n=14$) with wider support from the multidisciplinary team. The quality of primary studies within the reviews varied widely.

Conclusions This scoping review summarises the evidence landscape for rehabilitation, reablement, and restorative care approaches in the context of aged care. Despite their role in enhancing independence and quality of life for older people, policy, funding, and terminology variation means the evidence lacks clarity. This fragmented evidence makes it challenging to argue the effectiveness of one approach over another for older people in receipt of aged care services.

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Keywords Rehabilitation, Reablement, Restorative care, Aged care

Background

By the year 2050, one in six people in the world are predicted to be over the age of 65, accounting for 16% (2.1 billion) of the population [1]. The number of people aged 80 years and over is expected to triple by this time [2]. Older adults often experience declining mobility, balance, and cognition, and increasing frailty as they age [3]. Aged care services can assist older people to live independently at home with support for as long as possible or provide care in residential facilities when care needs become greater [4]. However, a rising absolute number of older people dependent on these services will inevitably increase demand for care, drive up care costs, and place strain on social care budgets in countries with strong welfare systems [5]. Policy makers in high-income countries looking to reduce expenditure on aged care are likely to increasingly focus funding on time-limited, intensive interventions that reduce older people's need for escalating levels of care by improving their function and independence [6]. These interventions variably fall under the umbrella terms rehabilitation, reablement, or restorative care (hereafter '3R approaches'). While service cost containment may constitute one driver of 3R approach implementation, the concept of 'active ageing' which emphasises autonomy, independence (the ability to perform activities of daily living with limited or no help from others) and quality of life represent another approach to creating a sustainable approach to ageing [7].

In consequence, reablement programs have been rapidly implemented into policies for aged care since 2002 [8]. These short-term, person-centred, intensive services reorient staff towards 'doing with' rather than 'doing to or for' the client [9]. In Australia, for example, a Royal Commission in response to safety and quality failures across the aged care system emphasised the critical role of allied health-delivered reablement and rehabilitation for 'maintaining or improving older people's physical and cognitive capabilities and supporting their self-determination.' [10] The Australian Government has since instigated that providers of Commonwealth Home Support Programmes must embed reablement and restorative care services to remain eligible for government funding [11].

Enthusiasm for these approaches, however, may not yet reflect the existing evidence base for effectiveness in terms of outcomes for individuals and services, or overall cost-effectiveness [9]. Two recent reviews of reablement effectiveness in residential and home care settings concluded mixed evidence of benefits, principally due to the wide variability in the types and characteristics of interventions studied and the outcomes measures used [12, 13]. Similarly, a review of rehabilitation in long term care found small effects on physical function which may not be generalisable across all aged care residents [14]. Convincing cost effectiveness data is also still required [12, 15].

Definitional issues may underpin some of the challenges in demonstrating effectiveness with different understandings of what each approach entails and how it should be delivered being reported within countries as well as internationally [8]. Even the conceptualisation of the more well established 'rehabilitation' approach has proven challenging with 178 individual definitions identified [16], none of which are specific to aged care. One suggestion for this ambiguity is that rehabilitation remains an 'emergent phenomenon' that is 'more than the sum of simple structures and processes' [17].

An international Delphi study defined reablement as:

> *... a person-centred, holistic approach that aims to enhance an individual's physical, and or other functioning, to increase or maintain their independence in meaningful activities of daily living at their place of residence, and to reduce their need for long-term services [18].*

While efforts have been made to agree on a common definition, interventions with similar components across different countries, especially those with comparable service models, are often labelled to reflect local contexts and needs [8]. Furthermore, 3R approaches are often conflated within the research literature [8]. For example, one review provides a single umbrella definition for reablement, reactivation, rehabilitation, and restorative care approaches which is 'intensive, short-term programs that aim to help home care recipients regain or retain the ability to manage some aspects of their care' (p. 654) [19]. Lack of a universal definition might be problematic for the various disciplines involved in aged care if they have different perceptions of appropriate care and interventions associated with each approach. Definitions also have the potential to drive policy, funding models, regulatory requirements, and determine scope of practice. They can also influence questions of who gets access to services and under what conditions with resulting considerations around equity of care.

We undertook a scoping review of the aged care rehabilitation, reablement and restorative care systematic review literature as part of the work of the Knowledge and Implementation Hub within the new Commonwealth-funded initiative, Aged Care Research and

Innovation Industry Australia (ARIIA). The purpose of this project was to develop short 'evidence themes' with practical implications for use by the Australian aged care workforce. The review sought to understand how each 3R approach is defined, described, and applied specifically within the aged care sector.

The application of 3R approaches to the care of older people is no longer a new phenomenon, with an expansion of programs observed from around the mid-2000s [8] and an increase in published research on this topic since 2010 [12]. We therefore chose to investigate these issues at the systematic review level, to understand how the research has coalesced over time to create stronger conclusions on best practice models and effectiveness. To guide our review, we worked to the following set of definitions (Fig. 1).

Objectives

To identify the extent to which rehabilitation, reablement, and restorative care are considered across the aged care systematic review research literature. Specifically:

1. How are these three approaches defined, conceptualised, and delivered within aged care contexts internationally?
2. What are the major themes examined within and across approaches at the synthesis level?
3. What is the quantity and strength of the available evidence for rehabilitation, reablement and restorative care in the aged care setting?

Methods

A scoping review was conducted to systematically map the research in this area for the rehabilitation, reablement, and restorative approaches in aged care to clarify definitions and identify existing gaps in knowledge. This scoping review followed the approach of Arksey and O'Malley [22] and is reported according to the PRISMA guidelines for scoping reviews [23]. This review was prospectively registered with Open Science Framework (https://osf.io/2y3bd/).

Eligibility criteria

Systematic reviews were eligible if they met the following criteria:

- Included older adults with a mean age of 60 years and over receiving aged care services. We define aged care as support provided to older people who need help in their own home or to those who can no longer live at home and therefore reside in residential facilities. An aged care service might include help with 'everyday living, assistive equipment, home modifications, personal care and health care, and accommodation.' [4] Aged care also includes short-term after-hospital and transition care services provided in the home, residential facility, or in the community.
- Reported on rehabilitation, reablement, and/or restorative care interventions.
- Were published in the English language since 2012.
- Documented their processes for controlling bias, including clear eligibility criteria, a replicable search strategy, and a report on quality appraisal of included studies.

Approach	Definition
Rehabilitation	A set of interventions designed to optimise functioning and reduce disability in individuals with health conditions in interaction with their environment. [20]
Reablement	A person-centred, holistic approach that aims to enhance an individual's physical, and or other functioning, to increase or maintain their independence in meaningful activities of daily living at their place of residence, and to reduce their need for long-term services. [18]
Restorative care	An approach often used to delay a person's need for high level residential care. Programs are usually short-term and less intensive, costly and complex than rehabilitation programs and often take place in the community. [21]

Fig. 1 Definitions of 3R approaches [18, 20, 21]

Systematic reviews based on all types of primary studies (e.g., qualitative, quantitative, mixed methods) were eligible. Furthermore, reviews focused on multiple settings were included if findings for aged care settings (residential, in-home or transition care) were reported separately. Protocol studies, and articles that reported on 3R approaches in acute inpatient settings prior to transition were excluded.

Information sources and search strategy

Nine databases were searched using individual database thesauri and free-text terms. Searches included three concepts: (1) rehabilitation, restorative care, and/or reablement interventions, (2) systematic review publication types, and (3) aged care settings or older consumers.

The databases searched were: Applied Social Sciences Index & Abstracts (ProQuest), Ageline (EBSCOhost), CINAHL (EBSCOhost), Medline (Ovid), Scopus (Elsevier), Social Services Abstracts (ProQuest) Social Care Online (Social Care Institute for Excellence), Occupational Therapy Systematic Evaluation of Evidence (OTSeeker) and Physiotherapy Evidence Database (PEDro). The full search strategy for Ovid Medline is provided in Additional file 1. The search strategy did not include grey literature sources such as conferences and theses repositories. The reference lists of all included articles were manually checked for eligibility.

Selection of sources of evidence and data charting

All citations were collated and saved in EndNote v20 (Clarivate Analytics, PA, USA) where duplicates were removed. The remaining citations were then uploaded to Covidence where they were screened and selected by two independent reviewers. This began with a calibration exercise of a set of 50 citations to ensure consistency across reviewers in applying the eligibility criteria. Disagreements on selections were resolved through discussion.

Data charting involved two reviewers working independently after a calibration exercise to ensure consistency of data summarisation. Extracted data were entered into a standardised template within an Excel spreadsheet (See Additional file 2) which included information on the review's author, year of publication, title, study design, population, setting, aims, approach, interventions, care providers, and practical implications. As is standard in conducting scoping reviews, quality appraisal was not carried out, however, a summary of author comments on quality and risk of bias for each review is provided in Additional file 3. Two researchers extracted definitions of the approaches from each review these are provided in Additional file 4.

Data synthesis

In accordance with the Arksey and O'Malley framework for scoping reviews, we grouped the included reviews according to the type of approach they described (i.e., rehabilitation, reablement, or restorative care). Two reviewers then collaboratively analysed the types of interventions or specific topics focused on by each review within each type of approach to construct the 'themes' across the literature. Reviewers determined appropriate titles and definitions for each theme and listed them numerically by their frequency across included reviews. Each theme was reviewed by an Evidence Advisory Group (EAG) consisting of experts who provided advice around language, concepts, scope and critically reviewed the themes extracted.

Results

Database searches were conducted on the 5th of September 2023. A total of 1,995 citations were retrieved from searches and reference list checking. Following the removal of duplications, 1,348 studies were screened independently by two independent reviewers against the inclusion criteria. A total of 41 systematic reviews were included in this analysis (see Fig. 2).

Characteristics of included reviews

Review designs included systematic reviews ($n=37$), overview of systematic reviews ($n=2$), a systematic scoping review ($n=1$), and one critical literature review ($n=1$). Five reviews [24–27] reported qualitative data and findings. All other reviews reported on quantitative outcomes with fourteen including meta-analyses. Overall, the 41 reviews reported on 737 primary studies. Most of the included studies were from the USA, UK, and Canada. Fifty-one of the included primary articles were Australian.

Aged care settings

Most reviews focused on care provided in the home or community ($n=15$) or included studies across both aged care and non-aged care settings ($n=10$). Six covered residential aged care facilities only and a further six reviews analysed research across both residential and home-based care. Settings are summarised in Table 1 and full data extraction provided in Additional file 2.

Care populations

Twenty-two of the included reviews focused on a specific subset of older people. These included individuals living with dementia, cognitive impairment and/or cognitive deterioration ($n=10$) [27, 29, 36, 41, 46, 50, 51, 53, 56, 59], recovering from hip fracture ($n=4$) [24, 31, 33, 41], discharged from hospital to home with transition care ($n=4$) [26, 27, 61, 62], individuals with low functional

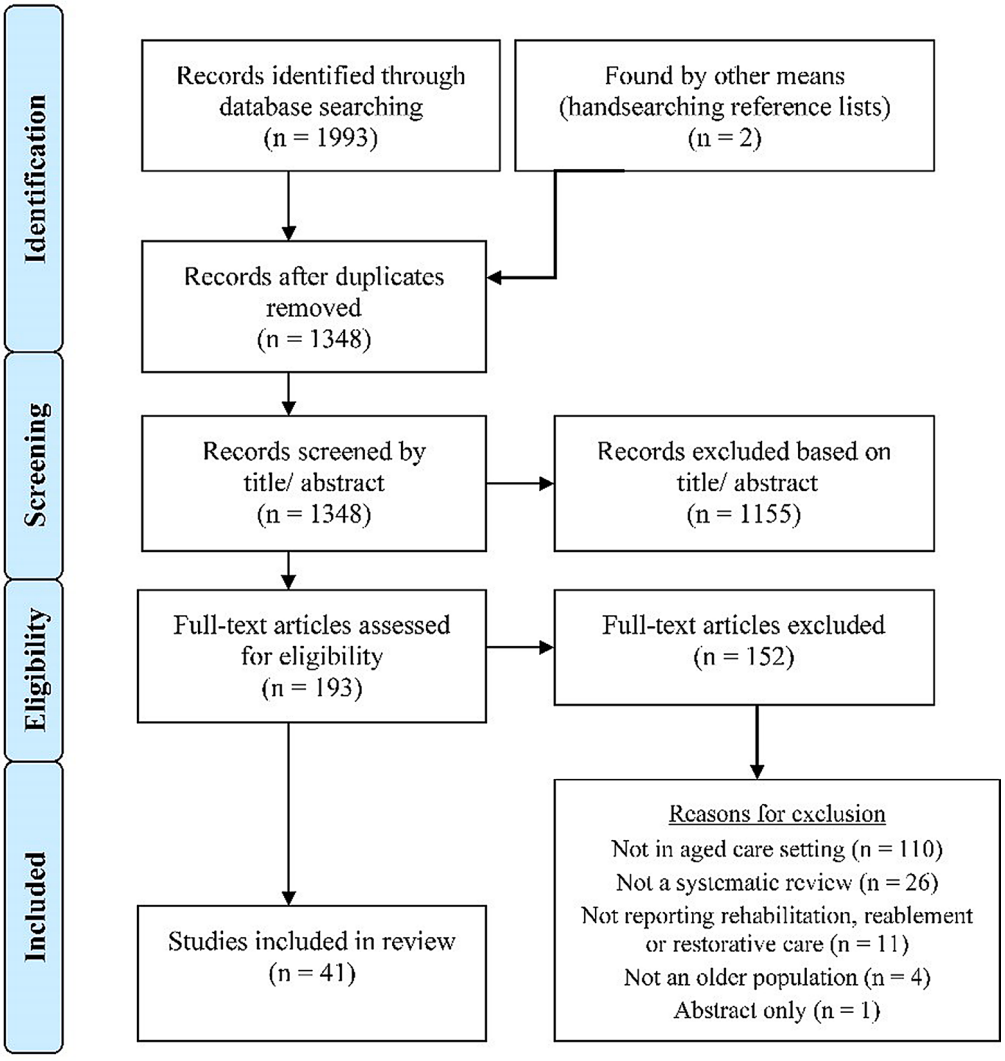

Fig. 2 PRISMA flow chart documenting inclusion/exclusion decisions

Table 1 Settings reported in review articles

Setting	Frequency
Home/community	15 [19, 25, 28–40]
Aged care and other settings (including community, residential, transition, and hospital care)	10 [14, 24, 41–48]
Both home/community and residential aged care	6 [49–54]
Residential aged care (RAC)	6 [55–60]
Transition care	4 [26, 27, 61, 62]

ability ($n = 2$) [34, 52], with an injury or illness ($n = 2$) [35, 44] and those fearful or at risk of falling ($n = 1$) [45].

Evidence quality

We did not perform quality assessments for the reviews included. The quality of primary studies was judged by included review authors and reported to be variable ranging from very low to high. Only five reviews reported on articles with good to high quality [27, 34, 41, 50, 53], with other reviews reporting high or unclear risk of bias. Full extraction of appraisal tools and quality are reported in Additional file 3.

Overview of rehabilitation, reablement, and restorative care findings

Each review reported on one of the 3R approaches or a combination of all three. However, only fourteen reviews [14, 19, 25, 32, 34, 38, 39, 50–52, 54, 55, 57, 58] provided definitions for 3R concepts, with three of these giving the same definition for two of the three approaches [19, 32, 39] (See Additional file 4). These approaches were delivered by multidisciplinary teams ($n = 26$) inclusive of 19 different types of healthcare professionals. Occupational therapists ($n = 22$), physiotherapists ($n = 20$) and nurses ($n = 14$) were most involved in care delivery. Nine reviews did not report who delivered interventions (See Additional file 2).

Rehabilitation in aged care settings

Twenty-eight reviews reported rehabilitation approaches in aged care [14, 24, 26, 27, 29, 31, 33, 35, 36, 41–53, 55, 56, 59–62]. Of these, five provided definitions for specific components of rehabilitation including, cognitive rehabilitation $n=2$ [50, 51], physical rehabilitation $n=2$ [14, 55] and functional rehabilitation $n=1$ [52]. These definitions often referred to goal-oriented care but were otherwise variable in nature (See Additional file 4). Rehabilitation in aged care was delivered across a wide variety of settings and combined with reablement and restorative care approaches in three articles [19, 28, 37].

Rehabilitation care delivery

Rehabilitation interventions were most commonly delivered by occupational therapists and physiotherapists as part of a multidisciplinary team. General practitioners, nurses, social workers, psychologists, speech pathologists, dieticians, activity facilitators, sports scientists, audiologists, and exercise trainers were also involved in interventions (See Additional file 2). Rehabilitative interventions focused on improving quality of care and cognitive training [50, 51]. Reducing behavioural symptoms for individuals living with dementia were also reported [29, 36]. Specific rehabilitation interventions were provided following hip replacements [24], to prevent falls [53] and to support hearing loss [56]. Integrated technology was used to rehabilitate older adult's walking and functional capacity [44, 47–49]. Exergames were used to determine effects on physical, psychological and cognitive outcomes [60], reduce falls [45] and were intended to improve the physical function of an older individual [14]. Reminiscence therapy was used in rehabilitation to improve quality of life for individuals living with Alzheimer's disease [59] (See Additional file 2).

Reablement in aged care settings

Four reviews focused on interventions termed 'reablement' in aged care settings [25, 38, 54, 58], with an additional five combining reablement with restorative care [30, 32, 34, 40, 63] and one combining reablement with rehabilitation [37]. Six reviews provided definitions for reablement approaches [19, 25, 34, 38, 54, 58], with three using Metzelthin et al.'s (2020) definition [18]. Of the four reviews solely focused on 'reablement,' this form of care occurred in the home ($n=2$) [25, 38], permanent residential aged care facilities ($n=1$) [58] and a combination of in-home and long-term care settings ($n=1$) [54].

Reablement care delivery

Reablement was commonly delivered by occupational therapists, physiotherapists, and nurses. This approach was also delivered by home care support workers, home care aides and social educators. On occasion, reablement approaches were developed by trained professionals and supervised in the home by non-professionals [34]. Reablement interventions aimed to enhance an individual's physical function to increase independence and reduce the need for long term services [54]. These interventions were multi-faceted, combining different approaches to try and improve independence of in-home clients [38].

Restorative care in aged care settings

One review focused on restorative care in residential aged care [57]. This approach was defined as '… an innovative nursing care philosophy that emphasizes evaluating residents' underlying functional capabilities and helping them to optimize a variety of functional abilities and increase physical activity.' [57] The restorative care interventions focused on psychological activities, improving activities of daily living, and function by integrating aerobic and strength training, storytelling approaches and function focused exercise programs.

Restorative care delivery

Restorative care was delivered by nurses in the one review focused purely on restorative care [57], yet when combined with rehabilitation and reablement, it involved a multidisciplinary team including occupational therapists, physiotherapists, and home support workers.

Cross-cutting themes

Across the 3R approach review literature, ten themes were identified. These themes focused on the role of allied health services and interventions, the characteristics and value of care approaches such as goal setting, physical activity, technology, transition care, and multidisciplinary team involvement, and commonly reported outcomes including functional independence, prevention of falls, cognitive rehabilitation, and recovery from hip fractures. Themes are listed and described in Table 2.

Allied health services and interventions

Fourteen reviews described the importance of allied health involvement in rehabilitation, reablement and restorative care. These reviews reported that home-based restorative and rehabilitative approaches delivered by occupational therapists and physiotherapists improved older adults' performance in instrumental activities of daily living [30]. Occupational therapy was found to improve quality of life [37], and targeted home-based occupational therapy programs reduced the need for emergency department visits, subsequently allowing older people to live in their homes for longer [40]. However, the nature of the specific interventions that were beneficial was less clear and often dependent on organisational structures [37]. The review demonstrates that

Table 2 Summary of evidence themes

Theme	Reviews	Description
Allied health interventions (*n* = 14)	[19, 28–30, 33, 35, 37, 40, 41, 43, 51, 52, 54, 57]	Allied health services are designed to 'maintain and optimise the physical, social, and mental, wellbeing of the community.' [64] Allied health interventions are dependent on the allied workforce providing them, they can include therapeutic, diagnostic, scientific and complementary services [65].
Functional independence (*n* = 11)	[14, 19, 24, 29, 32, 33, 37, 42, 44, 54, 63]	Functional independence describes a person's ability to perform activities of daily living such as eating, bathing and walking.
Multidisciplinary approach (*n* = 9)	[28, 30, 33, 35, 39–41, 43, 54]	Professionals from a range of disciplines working together to deliver comprehensive care that addresses as many of the [person's] needs as possible. [66]
Physical activity (*n* = 9)	[19, 31, 35, 38, 44, 45, 55, 58, 61]	'Any bodily movement produced by skeletal muscles that requires energy expenditure' including movement 'during leisure time, for transport to get to and from places, or as part of a person's work.' [67]
Goal setting (*n* = 8)	[24–26, 31, 34, 40, 54, 61]	Goal setting is the development of goals that are meaningful to the individual and suited to their needs and aspirations. The SMARTA approach to goal setting recommended by the Australian Government Department of Health and Ageing specifies that goals need to be specific, measurable, achievable, relevant, time-limited, and agreed upon [68].
Technology (*n* = 6)	[45, 47–49, 56, 60]	Technological advancements used to improve health or rehabilitation outcomes, often through feedback adaptation. Includes virtual reality (VR) exergaming, serious gaming, wearables, and telerehabilitation for older adults fall prevention [69].
Cognitive rehabilitation (*n* = 6)	[29, 36, 46, 50, 51, 59]	An approach to help people with cognitive impairment by focusing on 'identifying and addressing individual needs and goals, which may require strategies for taking in new information or compensatory methods such as using memory aids' [51].
Falls (*n* = 6)	[19, 41, 44, 45, 49, 53]	Defined as 'an event which results in a person coming to rest inadvertently on the ground or floor or other lower level.' [70] For older people, falls are a major risk for subsequent long-term care and institutionalisation.
Transition care (*n* = 4)	[26, 27, 61, 62]	Transition care programs (TCPs) provide services that support older adults returning from hospital to their own home or care facility. Some individuals receive TCPs in residential aged care facilities to support a return home. These programs are usually time-limited (up to 12 weeks), personalised to the individual, and provide restorative care. [71]
Hip Fracture (*n* = 4)	[24, 31, 33, 41]	Fractures due to fragility of the bone around the hip joint. Commonly associated with older age groups, putting people at risk of loss of mobility or independent living at home [72]. Rehabilitation is often required after hip fracture to assist older people to transfer and walk safely.

specific details of interventions are poorly reported and lack detail, thus limiting the reproducibility and transferability of outcomes to practical aged care delivery [19].

Functional independence

Eleven reviews described the importance of functional independence of older people. These reviews suggest that reablement approaches may help older adults to improve their functional independence and participate in everyday activities. They may also reduce the number of people requiring higher levels of personal care or those needing residential aged care [63] by supporting older adults to remain in their own homes [42]. Individualised community programs were reported to be useful in maintaining functional independence and preventing admission to residential aged care for older people with or without dementia [32]. Older people recovering from hip fracture were found to prioritise regaining physical function and independence to enable them to return to their social network [24] and made functional gains from interdisciplinary rehabilitation [33]. However, interventions and standardised assessments delivered by interdisciplinary teams could be useful to improve daily functioning for older adults receiving aged care [54].

Multidisciplinary approach

Nine reviews described multidisciplinary or interdisciplinary approaches to the delivery of rehabilitation, reablement and restorative aged care. The reviews suggest these interventions delivered by a multidisciplinary team of health professionals provided better care outcomes when the team was cohesive [39]. Multidisciplinary approaches that were tailored to the individual improved independent activities of daily living and mobility for older people receiving aged care support at home [54]. One review recommended that regular standardised assessments focused on meaningful goals should be used in diverse multidisciplinary teams to improve daily function for older people [54]. Reablement approaches have been delivered successfully in older people's homes using multidisciplinary approaches. However, the barriers and facilitators associated with working in a team when developing, implementing, and evaluating interventions, as well as the behaviour, attitudes and communication of individuals should be considered [39, 43].

Physical activity

Nine reviews described physical activity interventions in home care and permanent residential aged care settings, however limited evidence for specific interventions was found [38, 58]. Interventions that integrated physical activity to improve function and activities of daily living were reported in reablement approaches [58] and walking groups were integrated into rehabilitation to improve

physical activity, outdoor mobility, and endurance for older adults [44]. However, the evidence for physical activity interventions to support aged care recipients is limited. Future interventions should consider the type of physical activity and the specific needs of the person receiving aged care across a range of settings to improve levels of physical activity [38].

Goal setting

Eight reviews described goal setting in the context of the 3R approaches. Reablement was found to be generally well received by older people and their informal carers, however, those who didn't understand their role in reablement or how the services related to achieving their goals demonstrated poor engagement [25]. In contrast, older people recovering from hip fractures were aware that their recovery was dependent on their commitment to their goals and often used this as motivation to engage with rehabilitation [24]. Transition interventions providing education and goal-oriented interventions were also found to be effective in improving health and well-being outcomes for older adults at home [61]. Goals were discussed in terms of motivating individuals and directing care interventions.

Technology

Six reviews described the use of technology to support rehabilitation, reablement and restorative aged care, with exergames offering a promising novel technique for improving walking capacity, functional mobility and reducing falls risks for older adults [45, 47, 60]. Despite the benefits of using exergames with older adults, levels of cognition were seen to impact on the amount of time individuals took to adjust to, and accept such technologies [60]. One review suggested that to support the positive effects of exergames in residential aged care facilities, considerations for interventions to be delivered '2–3 times per week for 4–8 weeks [60].' However, frequency and duration of such interventions were variable throughout the literature and require further investigation. Reviews reported that virtual reality interventions could improve gait quality and resistance in healthy older people, which could be useful to prevent a decline in functional mobility [48]. However, evidence for the use of virtual reality interventions in aged care is limited and requires further investigation into the financial costs, acceptability and usability of virtual reality for older people and those delivering care [49].

Cognitive rehabilitation

Six reviews described cognitive rehabilitation interventions in aged care. These approaches appear to be effective for older people living with dementia if provided in the early stages of the disease [36]. Cognitive training may lead to small improvements in overall cognition for people living with mild to moderate dementia [51], with reviews suggesting that multi-component cognition-focused intervention programmes can improve or maintain functional capabilities for older people living with dementia [50]. Cognitive rehabilitation in the form of activities tailored to an individual with dementia were useful to reduce behavioural disturbances and improve overall function [29]. Reminiscence therapy was found to assist in the effective management of Alzheimer's disease- related symptoms by stimulating cognitive abilities and improving general wellbeing [59].

Transition care

Five reviews reported transition care interventions where it was unclear whether older adults regained their previous levels of mobility and independence when returning home from hospital [26, 27, 35, 61, 62]. Older people who felt uninvolved in their care or felt excluded from decision making might act autonomously by modifying medication plans for convenience or seeking to build their own ramp so they could attend medical appointments [26]. For older people living with dementia, the implementation of transition care is not well understood and reviews called for a focus on person-centred (treating each person respectfully as an individual), individualised, high-quality care whilst long-term support is being arranged [27]. Transition interventions providing education and goal-oriented interventions were found to be effective in improving health and well-being outcomes for older adults at home. However, the impact of these interventions on rehospitalisation rates were inconclusive [61].

Falls

Six reviews discussed approaches to prevent falls for older people receiving aged care. The evidence suggests that older people living with dementia are at a higher risk of falling and subsequent hip fractures [41]. Those living in the community are at greater risk for falls due to increasing functional decline as a result of muscle loss [49], immobility, and their surrounding environment. The effects of multicomponent interventions incorporating both physical and cognitive components on falls rates were inconclusive for both community and residential aged care residents [53]. However, rehabilitation that included outdoor mobility did not seem to influence falls-related self-efficacy for older adults living in the community [44]. Exergames in rehabilitation programs may reduce fall rates for older adults regardless of their baseline condition [45]. Overall, however, more research is required to determine how rehabilitation, reablement and restorative aged care delivery can reduce falls risk for older people.

Hip fracture

Four reviews reported older people recovering from hip fracture. These individuals were found to prioritise regaining physical function and independence to enable them to return to their social network [24]. They noted that recovery was dependent on their commitment to personal goals [24] and took personal responsibility for their rehabilitation and exercises. Rehabilitation following hip fracture promoted functional gains for patients with mild-moderate dementia and those without dementia [41]. Rehabilitation provided by interdisciplinary geriatric teams may be useful to improve the physical function and mobility of older adults following hip fracture when compared to conventional hip fracture care [33]. However, further research is required to determine how rehabilitation can be effective for individuals residing in residential aged care following hip fracture [41].

Discussion

The intent of this review was to map and compare the international evidence landscape relating to rehabilitation, reablement and restorative care at the level of systematic reviews to determine how these approaches are conceptualised in the context of aged care. High quality systematic reviews that summarise a substantial and well-established body of research are an important source of knowledge for clinicians tasked with translating evidence into practice or clinical practice guidelines. They can also inform policy development and funding models [73]. We identified several important themes across this review literature, including the key role for allied health and aims to improve functional independence using 3R approaches. However, the review confirms a now well documented lack of definitional clarity surrounding this topic [8, 9, 58, 74] with only 14 of 41 reviews providing a definition of the approach on which it purported to summarise the research evidence.

Wade states, '[i]n the clinical context, discussions, not definitions, establish what is meant' [17] and this is reflected by those delivering aged care. Aged care providers report having a generalised understanding of the 3R approaches which allows them to adapt interventions to suit their aged care setting, rather than depend on one definition [75]. However, these providers expressed concern that healthcare professionals have different ideas of what the approaches are, which could cause issues delivering person-centred care, especially as they work together in a multidisciplinary team [75].

Definitional issues can influence funding policy which can in turn affect availability and accessibility of care. Lack of clear definitions may indirectly shape the likelihood of research that underpins clinical practice being funded and undertaken and the development of guidance for health professionals and for aged care services on effective care interventions. Without an appropriate evidence base for practice that can shape funding policy, health professional training and practice and service uptake, widespread implementation of these approaches that could enhance outcomes for older people will be limited. The diffuse and heterogeneous evidence base has been noted within individual reviews which have highlighted variability across the types of interventions associated with each approach, their components, duration, and tools used for measuring functional ability [12, 13, 76, 77].

While acknowledging the variability of the evidence base, the reviews indicate that 'rehabilitation' was more strongly associated with themes describing recovery from acute events such as falls or fractures. Since rehabilitation is tailored to specific diagnoses, the challenge with reablement and restorative care approaches lies in the lack of clear, well defined research frameworks defining their implementation. All 3R approaches were provided across a variety of clinical settings, were goal-oriented, and appeared to embed technology to enhance cognitive and physical function. The delivery of rehabilitation was provided by professionals including speech pathologist, psychologists and audiologists which perhaps reflects the medical and cognitive recover needs of an older adult. In contrast, reablement was delivered by nurses and non-professionals. Perhaps the biggest difference was the intensity of intervention, with rehabilitation focused on intense clinical recovery, reablement emphasizing independence and prevention and restorative care being more gradual, focusing on long-term goals. It appears that the reablement approach more closely aligned with the requirements of aged care services, supporting older people to maintain ongoing independence carrying out daily tasks [78]. We identified a comparative lack of reviews for 3R approaches specifically within residential facilities, a finding that has been reported elsewhere [12, 58]. However, generalising findings from the home care setting to residential care may not be appropriate given differences in policies, funding models, and populations across these two service settings. To date, the rationale for reablement within home/community care seems clear as the goal is to help people regain or maintain independence and quality of life so that they can continue living in their own homes and preventing acceleration of care needs [79]. Additionally, the goals of regaining or maintaining independence may be seen as less needed residential aged care where residents tend to be older, more medically complex, or living with dementia. Reablement for independence in this context may be seen as less significant. However, Radja suggests, this population might benefit from a different set of reablement goals such as adjusting to living in the facility and maintaining social networks [58]. Reablement suited to persons living with

dementia in residential aged care may warrant specific attention with one study reporting the exclusion of this population as research participants [74].

We had expected cost-effectiveness to emerge as a theme in this review based on the cost containment hopes associated with the reablement approach. The fact that it was not prominent may reflect the paucity of primary cost-effectiveness research observed by Lewis et al. [12] It is perhaps not surprising that the economic evidence base remains immature considering variability in types of services offered by providers, the ambiguity around the professional groups providing them, and the requirement to individualise care to recipients with differing levels of complexity and need [80]. There is evidence to suggest that providing reablement for older people living at home has the potential to maximise independence and increase cost effectiveness of aged care [81].

A variety of different professionals were involved in delivering rehabilitation, reablement and restorative aged care. Like other reviews, we found a substantial number of reports did not specify the discipline providing the care [13, 80]. As expected, a multidisciplinary approach with allied health professionals leading programs was strongly evident across the 3R review literature. The important role nurses play in 3R services was also clear with 14 reviews reporting their involvement. The impacts of having nurses rather than allied health professionals deliver interventions has also been raised [83]. However, the role of care workers in 3R approaches, either in the community or residential facilities, did not come through in the review literature. This is surprising considering the large numbers of carers providing aged care services worldwide [82].

Funding models for aged care can influence the professional groups involved in providing 3R approaches by stipulating the specific therapeutic activities covered by payments. A survey of Australian occupational therapists elucidated ways in which a former funding tool (the Aged Care Funding Instrument or AFI) imposed limitations on their scope of practice by linking provider payment to specific therapeutic activities [83]. Concerns are now being raised over the effects of the AN-ACC replacement funding model on allied health engagement into the sector with a clear reduction in number of occupational therapists observed since its introduction [84]. Along with a need for better cost-effectiveness evidence for well-delineated reablement or rehabilitation programs [12], aged care reablement implementation efforts at the national level may benefit from a program logic approach linking policy and funding levers with the desired outcomes for residents, staff mix and training needs, and the required, evidence-based reablement activities. Appropriate frameworks and models are needed to support continuing independence for older people.

Recommendations for future research

This scoping review did not identify a strong, cohesive evidence base in support of rehabilitation, reablement and restorative aged care approaches. High quality research based on clear theoretical underpinnings is required to determine specific interventions and frameworks that are effective to support healthcare professionals and care workers to support the independence and quality of life for older people. Understanding how these approaches can be embedded into aged care would be useful to determine the nuanced effects of policy on care delivery and develop appropriate frameworks.

Strengths and limitations

This scoping review followed systematic guidelines, including a comprehensive search and replicable methods. However, despite a rigorous search being carried out, the issues we have described around definitional clarity may have contributed to relevant reviews being missed, particularly those focused on specific interventions implicitly aligned with 3R practices. In addition, the interchangeable use of these terms and understanding of their definitions internationally may be present in the reviews scoped. What qualifies as an aged care service can also be difficult to determine in the international literature. While we were interested in understanding what the growing body of research on this topic has to say at the level of evidence synthesis, we acknowledge that this overlooks well conducted, highly relevant, and more current primary studies that have not yet reached the level of synthesis. In other words, the review is necessarily based on older research and may have missed contemporary research that addresses some of the issues we highlight. Working at the review level can also skew the data under analysis to what researchers have chosen to synthesise out of interest or as part of funding agreements.

Our work with the ARIIA project and focus on Australian aged care issues may have contributed to a reliance on examples from the Australian context in our Discussion section. We acknowledge that there is a rich body of international literature on the topic that we have not drawn on.

Conclusion

This scoping review has mapped and compared the themes and terms used to describe rehabilitation, reablement and restorative approaches in the context of aged care. Despite recognition that these approaches support independence and quality of life for older adults, the evidence base lacks clear definitions and remains fragmented. While reablement approaches seem to be more

closely aligned with aged care, who provides care and the level of implementation of these approaches appear to be influenced by policy, funding models, and terminology. Further research with aged care stakeholders is required to fully understand the nuances of providing rehabilitation, reablement and restorative in different aged care settings. By understanding these key concepts, we can better support the evolving needs of an ageing population, support quality of life, and enhance experiences of aged care services.

Abbreviations

3R approaches	Rehabilitation, reablement and restorative care
EAG	Evidence Advisory Group
ADL	Activities of daily living
RT	Reminiscence therapy
AD	Alzheimer's disease
LTCF	Long term care facilities
IVT	Immersive virtual training
VRT	Virtual reality technology
VRT-NS	Non-specific virtual reality technology
VRT-S	specific virtual reality technology
BPSD	Behavioural and psychological symptoms of dementia
VR	Virtual reality
IPC	Interprofessional care
PLWD	Person living with dementia
RAC	Residential Aged Care
TCP	Transition care package
PwD	Person with dementia
IADL	Instrumental activities of daily living
FFC	Function focussed care
QoL	Quality of life
CBT	Cognitive behavioural therapy
HIP	Home independence program
HRQoL	Health related quality of life
OOHS	Out of hospital setting
OTs	Occupational therapists

Supplementary Information

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Supplementary Material 1: Ovid Medline search strategy.

Supplementary Material 2: Summary of included studies [14, 19, 25, 26, 28, 29, 24, 27, 32, 33, 34, 35, 36, 37, 38, 40, 43, 44, 45, 49, 41, 42, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 58, 59, 60, 61, 62, 85, 86, 87].

Supplementary Material 3: Summary of Quality and Risk appraisals.

Supplementary Material 4: Definitions Summary (rehabilitation, reablement and restorative care).

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PRD designed search terms and completed search for the review. CG, RD, and JD examined all articles for inclusion in the review. All authors contributed to data extraction. CG wrote the manuscript. RD and JT provided comments/revisions to the manuscript.

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The authors declare no competing interests.

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