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Skills training in activities of daily living for persons living with dementia: a scoping review protocol

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ABSTRACT

Introduction The need for rehabilitation interventions for persons living with dementia is increasing. Improvements in the activities of daily living (ADLs) are often required in this process. On the other hand, reduced learning ability among these people complicates decision-making regarding interventions, so research is needed to support this. Structured skills training is commonly used to teach ADLs to persons living with dementia, and studies have reported it to be useful. However, a synthesis of the evidence on this topic is lacking. Therefore, this scoping review aims to systematically integrate the results of randomised controlled trials (RCTs) on skills training for persons living with dementia, identify gaps in existing knowledge and suggest future research and practice.

Methods and analysis This scoping review was planned based on the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines. We comprehensively searched target articles using five electronic databases (PubMed, Cochrane Central Register of Controlled Trials, Scopus, Physiotherapy Evidence Database and Cumulative Index to Nursing and Allied Health Literature) on 20 March 2024 and are currently screening their titles and abstracts. Eligible studies are RCTs published in English peer-reviewed journals that evaluated the results of skills training for ADLs in participants diagnosed with dementia. We are excluding studies that included mild cognitive impairment, used an intervention that is non-specific to ADLs and lacks teaching strategies, applied group settings, or addressed only smooth movement or stability. The search process and extracted data will be presented using structured figures and tables. By integrating and interpreting the findings, we will identify the gaps in the existing knowledge.

Ethics and dissemination Ethical approval is not required for this study because the data will be collected from existing research articles. This scoping review will be disseminated through conference presentations and peer-reviewed journals.

Trial registration number UMIN000054539.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ We are ensuring a methodologically rigorous review process in accordance with the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews guidelines, thereby enhancing the reliability and reproducibility of our findings.
⇒ A broad and systematic search across five databases enhances the review's comprehensiveness and reduces the risk of missing relevant studies.
⇒ Independent screening and data extraction by two reviewers will minimise selection bias, improve the accuracy of the included studies and enhance the results' reliability.
⇒ Since the search target is set to English peer-reviewed papers, there is a concern about language bias, and it is possible that the generalisability of the results will be limited.

INTRODUCTION

The need for rehabilitation is predicted to continue to increase among persons living with dementia.[1] Rehabilitation is defined as 'a set of interventions designed to optimise functioning and reduce disability in individuals with health conditions in interaction with their environment',[2] and interventions concerning activities of daily living (ADLs) are essential in the rehabilitation process.[3 4] The ADLs' performance affects important outcomes, such as quality of life,[5] institutionalisation[6] and mortality[7] among persons living with dementia. Therefore, interventions targeting ADLs are extremely meaningful among these people. Approaches to ADLs include relearning skills that declined due to comorbid conditions or sudden deterioration, learning new skills that are needed following deterioration-induced changes in one's physical condition or environmental factors and maintaining skills that are gradually lost due to the progression of dementia. However, the ability to learn or relearn tasks is significantly reduced among persons living with dementia.[8] In addition, some may have impaired executive function, which can affect the ability to sequence tasks.[9] Furthermore, performing ADLs requires the ability to integrate information from the environment and

internal needs to complete tasks.[10 11] These factors make it difficult to make decisions about the best way to intervene when persons living with dementia need help in learning ADLs, so research to support this is important.

Skills training is used not only in the rehabilitation field but also in research fields such as sports science,[12] psychology,[13] education[14] and information literacy,[15] with a focus on the development and improvement of human skills and abilities. Against this background, although varying between studies, the definition of skills training includes the common concept of teaching and acquiring specific skills and appropriate behaviour and then demonstrating them in appropriate situations.[16] Accordingly, in this study, we define and use 'skills training' as an intervention to teach specific skills. Thus, skills training is distinguished from task-non-specific physical exercise and cognitive stimulation, which do not have a learning strategy.

Studies have suggested that structured skills training may be an effective way for persons living with dementia to learn ADLs.[17 18] Skills training for ADLs in persons living with dementia is a part of cognitive rehabilitation (an effective intervention framework for persons living with dementia[19]) and often involves structured interventions that follow standardised or step-by-step procedures by adapting specific learning methods.[17 18] Research has suggested that using a structured learning method that considers the state of cognitive function can compensate to a certain extent for the reduced learning ability in persons living with dementia.[20] In the case of these individuals, if the content of the intervention is complex, adherence may be a problem due to excessive cognitive demands or confusion about understanding instructions, and the intervention itself may become difficult. Skills training is believed to structure tasks and intervention methods in a manageable way, and by reducing complexity, it is possible to adjust the cognitive load to a certain extent,[17 18] so it is easier to ensure opportunities for intervention with persons living with dementia. Additionally, because this intervention does not require expensive equipment or a special environment, it is highly adaptable to the diverse situations of persons living with dementia. These aspects indicate the clinical usefulness of structured ADL skills training for persons living with dementia.

Theoretically, errorless learning (EL) has been considered an appropriate learning method for persons living with dementia.[20 21] EL is defined as a learning method based on the concept of promoting learning while eliminating or at least minimising errors.[22] For persons living with dementia, when memory and executive function decline, it can be difficult to repeat appropriate actions, which can lead to learning incorrect task procedures and actions and the smooth progression of training being hindered. Skills training that uses EL can avoid behavioural errors during intervention by facilitating appropriate behaviour in advance, and it is thought to be suitable for persons living with dementia because it can promote the learning of necessary skills.[20 21] On the other hand, studies on the effects of skills training among learning methods that adapt to the structuring of skills training have reported different results depending on the randomised controlled trials (RCTs). In one RCT involving nursing home residents with mild to moderate dementia, EL combined with modelling learning was applied to completely individually adjusted ADLs, leading to significantly greater ADL improvements than trial-and-error learning (TEL).[23] Contrastingly, in another RCT involving people with mild to moderate dementia living at home, skills training using either EL or TEL for tasks selected from 43 ADLs according to the participant's needs resulted in significant performance improvements in both groups, with no significant difference between them.[17] These findings emphasise the need for systematically integrating research evidence to optimise intervention strategies for persons living with dementia.

However, to the best of our knowledge, the synthesis of evidence on ADL skills training for persons living with dementia has been limited to literature reviews that have not sufficiently included RCTs.[20–22] In other words, it is implied that despite the commonly used intervention methods, the results of those RCTs have not been fully reviewed and are being applied in clinical practice. Considering the future increase in the number of persons living with dementia[24] and their rehabilitation needs,[1] it is important to explore interventions that match the diverse conditions of persons living with dementia. As research on training skills for ADLs for persons living with dementia is still in its developmental stages, it was thought necessary to organise the existing RCTs through a scoping review rather than a systematic review and to identify gaps in existing knowledge.

The purpose of this scoping review is to identify existing gaps in knowledge and provide recommendations for future research and practice by systematically integrating the evidence from RCTs on ADL skills training for persons living with dementia.

METHODS AND ANALYSIS

This protocol was planned based on the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines[25] (online supplemental appendix 1). Considering that research in this field is still developing, we conducted a complete article search of electronic databases on 20 March 2024 to confirm this review's feasibility. The screening of titles and abstracts based on the eligibility criteria is currently ongoing. This is acceptable before registration in PROSPERO (the standard registry for systematic reviews) and has been commonly performed in previous scoping review protocol papers.[26–28] Because PROSPERO does not accept registrations for scoping review protocols, this protocol has been registered with the University Hospital Medical Information Network

Clinical Trials Registry (ID: UMIN000054539) and will be updated in the future.

Eligibility criteria

The selection criteria are as follows: (1) participants diagnosed with dementia; (2) skills training as the intervention (for this study, we define and use 'skills training' as an intervention to teach specific skills); (3) ADL-related assessments as primary outcomes, which include both basic ADLs (eg, bathing, dressing, toileting and eating) and instrumental ADLs (eg, cooking, doing the laundry and using the telephone); (4) RCT as the study design; (5) written in English; (6) published in a peer-reviewed journal; and (7) original articles.

The exclusion criteria are as follows: (1) inclusion of persons with mild cognitive impairment or selection of persons living with dementia based on screening tests and other methods other than diagnosis; (2) interventions that are non-specific to ADLs and have no teaching strategies (eg, physical exercise and cognitive stimulation); (3) interventions administered in group settings (because it is practically difficult to provide training that is specialised for individual ADLs) and (4) interventions and outcome evaluations that improve only movement or stability.

Information sources and search strategy

A comprehensive search was conducted across several electronic databases: PubMed, Cochrane Central Register of Controlled Trials (CENTRAL), Scopus, Physiotherapy Evidence Database (PEDro) and Cumulative Index to Nursing and Allied Health Literature (CINAHL).

The search was conducted by combining the terms for "population," "intervention," and "outcome" using the "AND" operator. Dementia was the term for "population," skills training for "intervention," and ADLs for "outcome." For a comprehensive search, we combined synonyms for each term using the "OR" operator. The search formulas for each database are shown in online supplemental appendix 2. We searched for articles that were published up to March 2024.

Study selection

The papers identified by searching the selected databases will be summarised in a spreadsheet using Microsoft Excel 2019. The search, data collection and data extraction will be conducted by two independent reviewers based on pre-established eligibility criteria to ensure that there are no biases. In the event of disagreements, a third reviewer will be consulted to achieve consensus.

In the first screening, we will check the titles and abstracts of the papers and exclude those that do not meet the eligibility criteria. In the second screening, we will check the full text of papers not excluded in the first screening or papers on which judgement is difficult. The content of these papers will be checked based on the eligibility criteria, and final selections will be made.

Assessment of methodological quality

Using the PEDro scale, we will assess the methodological quality of the included studies to gain an objective interpretation of the articles and suggestions for future study designs. The PEDro scale is a valid and reliable tool for assessing the quality of clinical trial methodology.[29–31] The evaluation items are as follows: eligibility criteria and source; random assignment; concealed allocation; baseline similarity; blinding of participants; blinding of treatment; blinding of assessors; completeness of follow-up; intention-to-treat analysis; between-groups statistical comparisons; and point estimates and measures of variability. This evaluation will be conducted independently by two reviewers. In the event of disagreements, consensus will be achieved by consulting a third reviewer.

Data extraction and presentation of results

We will use the PRISMA flowchart to describe and visualise article search and screening. Two reviewers will independently extract the data, with a third reviewer consulted in the event of disagreements. Specifically, we will extract information about the author, journal, year of publication, title, study purpose, study design, country, number of participants, basic information on participants, learning methods used in skills training, details of the actual skills training, duration of intervention, number of interventions, methods of outcome measurement and results of the intervention. The data extracted will be summarised qualitatively in a structured table. Subsequently, we will integrate and interpret the findings, identify gaps in existing knowledge and determine implications for future research and practice. If there are related papers (eg, process evaluations, intervention development papers and protocols) that provide additional or clarifying information about the structure or procedures of the intervention, we will use them to supplement our understanding of the target study. However, the main research paper will be used as the data source for extracting results, and the related papers will be used as supplementary information to explain the intervention as needed.

Ethics and dissemination

Ethical approval is not required for this study because the data will be collected from existing research articles. This scoping review will be disseminated through conference presentations and peer-reviewed journals.

DISCUSSION

In this study, we identify gaps in existing knowledge by systematically integrating evidence from RCTs on ADL skills training for persons living with dementia. Even though skills training is a common intervention for teaching ADLs to persons living with dementia, previous reports have not provided a sufficient review.[20–22] Therefore, the results of this review are expected to provide comprehensive and insightful information on structured learning methods in skills training for persons living

with dementia. They are also expected to reveal future research issues and aid the development of new strategies.

On the other hand, this review has some limitations regarding the feasibility of this research. First, we only searched for articles written in English. Owing to a specific language bias, there are limitations to the generalisability of the research. Second, we searched for articles published in academic journals using several keywords across five databases. We are attempting to conduct a comprehensive and reliable search, and we will carefully examine the papers. However, not all studies may have been included.

Despite these limitations, this review is significant considering the current lack of summarised evidence from RCTs on ADL skills training for persons living with dementia. The importance of ADLs in the rehabilitation of persons living with dementia is clear[5–7] and defined as a key outcome.[3 4] In other words, this review will contribute to the development of rehabilitation for persons living with dementia and suggest future directions.

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