

Critical Review:
In individuals with dementia, is reminiscence therapy an effective intervention for improving autobiographical memory?

Brady Darling
M.Cl.Sc. (SLP) Candidate
University of Western Ontario: School of Communication Sciences and Disorders

This critical review examines the evidence regarding the use of reminiscence therapy for improving autobiographical memory in individuals with dementia. Studies evaluated include: five randomized controlled trials (RCT) and one quasi-experimental study. Overall, the evidence gathered from this review is mixed, thus resulting in suggestive evidence for the efficacy of reminiscence therapy in improving autobiographical memory for individuals with dementia. Recommendations for future research and clinical practice are discussed.

Introduction

Dementia significantly impairs core cognitive functions such as memory, communication and language. In particular, autobiographical memory is often impaired in individuals with dementia (Lalanne, J., Gallarda, T., & Piolino, P., 2015). Autobiographical memory is a form of explicit memory that consists of specific, personal events from an individual's life. It includes episodic (personal experiences, objects, people and events at a specific time) and semantic (general knowledge about oneself and events) memories. Autobiographical memory allows individuals to make connections between past and present in order to form a sense of personal identity (Melendez, J, C., Torres, M., Redondo, R., Mayordomo, T., & Sales, A., 2015), and thus has important functions on everyday life. For example, autobiographical memory provides a sense of continuity over time, aids the development of personal goals, and contributes to effective social communication with others (Lalanne et al., 2015). With impaired autobiographical memory, individuals with dementia can experience a loss of personal identity which can have negative effects on overall quality of life.

As the number of individuals with dementia grows, it is important to provide effective community-based interventions for this population (Woods et al., 2012). Reminiscence therapy is a popular therapeutic approach for treating patients with dementia and it is often used in long term care facilities. The aim of reminiscence therapy is to recall meaningful memories from the past by relating experiences, facts or actions associated with certain stimuli (Melendez et al., 2015). In the literature, reminiscence therapy has been shown to have positive effects on depression, overall mental health and cognition (Pinquart & Forstmeier, 2012), but less is known

about the effects of reminiscence on autobiographical memory.

There is no "gold standard" or a shared definition for reminiscence therapy (Dempsey et al., 2014), thus it takes many forms in research and clinical practice. Group-based reminiscence interventions are commonly used to stimulate autobiographical memory during group conversations with external aids (i.e. objects, pictures) from the past (Kirk, M., Rasmussen, K., Overgaard, S., & Berntsen, D., 2018, Melendez et al., 2015, Woods, et al., 2012). Individual-based reminiscence therapies, such as individual life review, also aim to stimulate autobiographical memory through the development of life story books and chronologically reviewing significant past events (Morgan & Woods, 2010, Subramaniam, P., Woods, B., & Whitaker, C., 2014). The use of cognitive training programs has also been explored in the literature in attempt to improve autobiographical memory in individuals with dementia (Lalanne et al., 2015).

Effective evidence-based intervention is required to help optimize quality of life for individuals with dementia and autobiographical memory loss. Speech-Language Pathologists (SLPs) have a critical role to play with these individuals as they are involved with providing assessment and intervention in the areas of cognitive communication, language and memory. Although articles included within this critical review do not directly involve SLPs, the information gathered is applicable to their scope of clinical practice. By being aware of the research surrounding the efficacy of reminiscence therapy for improving autobiographical memory in individuals with dementia, SLPs may be in a better position to best provide intervention for this population.

Objectives

The primary objective of this paper is to critically review studies evaluating the efficacy of reminiscence therapies aimed at improving autobiographical memory in individuals with dementia. The secondary objective is to describe the clinical implications of reminiscence therapy in practice.

Methods

Search Strategy

The database *Pubmed* was used to search for articles. The following search terms were used: 'reminiscence therapy' AND 'autobiographical memory' AND (dementia OR Alzheimer's disease). Reference lists of relevant articles were also searched for additional studies. Due to the closeness of classification and terminology in the literature, "dementia" and "Alzheimer's disease" were both considered appropriate for this critical review.

Selection Criteria

Articles included in this critical review were chosen if they satisfied the following criteria: evaluated a reminiscence therapy intervention using autobiographical memory as an outcome measure, examined patients with dementia and/or Alzheimer's disease, and were peer reviewed.

Data Collection

This literature search yielded six journal articles that satisfy the selection criteria. Studies included five randomized controlled trials (RCT), and one quasi-experimental single blind study.

Results

Randomized Controlled Trials (RCT)

Randomized controlled trials (RCT) are considered to be Level 1 evidence for research design (Oxford Centre for Evidence-based Medicine, 2009). Participants in RCTs are randomly assigned to an intervention group and a control group which minimizes risk of bias and confounding factors. Limitations of RCTs can include high cost and risk of Type 1 and 2 errors when small sample sizes are used.

Kirk et al. (2018) conducted an RCT which examined the effectiveness of an Immersive Reminiscence Therapy (IRT) program on autobiographical memory for individuals with Alzheimer's disease compared to usual care. The study included 43 individuals with mild to moderate

Alzheimer's disease. Participants were randomly allocated to an intervention group (IRT) or control group (usual care). Intervention consisted of five weeks of group-based IRT within a 1950's style museum setting to match the time of the participants' youth. Each week was themed according to a different life period and sessions involved semi-structured conversations related to each life period and using relevant objects. Autobiographical memory for the intervention and control group was measured using appropriate test methods at baseline and post-intervention. Appropriate statistical analyses revealed that IRT was associated with improvements in autobiographical memory performance when concrete objects were provided. In particular, the degree of episodic content and word count of object cued memories were significantly higher post intervention. Semantic autobiographical memory performance increased across time for both groups.

Strengths of this study include a relatively large sample size, appropriate inclusion and exclusion participant criteria, blinding of assessors and high inter-rater reliability. A thorough definition of IRT was also provided. Limitations include absent post-test measures to determine the long-term effectiveness of reminiscence therapy on autobiographical memory.

This study provides highly suggestive evidence for the effectiveness of group-based IRT to improve object-cued episodic memories for individuals with Alzheimer's disease. Due to significant effects only being found on one measure, the overall study provides suggestive evidence for the effectiveness of IRT to improve autobiographical memory in individuals with dementia.

Woods et al. (2012) conducted a pragmatic multicentre RCT to evaluate the effectiveness and cost-effectiveness of joint reminiscence groups as compared to usual care for individuals with dementia. The secondary outcome, autobiographical memory, was reviewed for this critical review. The study included 488 individuals with mild to moderate dementia and the individuals were randomly assigned to either an intervention group (joint group reminiscence) or control group (usual care). The intervention group engaged in 12 weekly joint reminiscence groups, followed by monthly sessions for 7 months. Sessions were two hours in length and followed the 'Remembering Yesterday, Caring Today' (RYCT, Schweitzer & Bruce, 2008) treatment manual. Each session was based on a different theme (i.e. childhood, working life, etc.) and included a range of group activities (cooking, re-

enactment of memories, etc.). Appropriate tests methods were used to measure autobiographical memory at baseline, 3 months and 10 months (end point). Appropriate statistical analyses revealed no significant differences in outcome measures between the intervention and control groups at 3 months or the 10-month end point. The overall attrition rate was 28% at 10 months; however, a compliance analysis revealed that individuals who attended more reminiscence sessions showed improved autobiographical memory at 3 months.

Strengths of this study include large sample size, strong inclusion and exclusion criteria, blinded assessors and inclusion of several subtypes of dementia. The use of a guided treatment manual allows for replicable methods and consistent implementation of reminiscence therapy. A limitation is low participant retention rate.

Overall, this study provides highly suggestive evidence that joint group reminiscence therapy is not effective at improving autobiographical memory for individuals with dementia.

Subramaniam et al. (2014) conducted an RCT which examined the effectiveness of life review and life story books for people with mild to moderate dementia. Two research questions relevant to this critical review were identified: (1) Does life review intervention, resulting in a life story book, have a positive effect on autobiographical memory and (2) does a life story book produced through a life review process improve autobiographical memory, when compared with a life story book produced for the patient without their involvement? The study included 23 individuals from long term care homes with mild to moderate dementia. Individuals were randomly allocated to receive either 12 individual life review sessions over 12 weeks while co-creating a life story book, or receive usual care and a personal life story book created by their relatives as a 'gift'. Appropriate test methods were used to measure autobiographical memory at baseline, 12 weeks and 18 weeks.

Results for research question 1 were obtained by comparing scores between the groups at the end of life review sessions, with baseline scores as a covariate. Results for research question 2 were obtained by comparing scores between groups at the follow up period, with baseline scores as a covariate. Overall, appropriate statistical analyses revealed that personal semantic and episodic autobiographical memory in the life review group improved significantly more than the gift group during the life

review sessions (baseline to 12 weeks); however, no difference was observed between groups once all participants had a life story book.

Strengths of this study include clear, replicable methods, and inclusion of individuals with various subtypes of dementia. Limitations include small sample size, and absent inter-rater reliability test scores.

Overall, this article presents highly suggestive evidence for the effectiveness of individual life review at improving autobiographical memory compared to usual care for individuals with mild to moderate dementia. This article also presents highly suggestive evidence that a life story book created with or without patient involvement may benefit autobiographical memory in this population.

Morgan & Woods (2010) conducted a preliminary RCT to evaluate the effects of life-review therapy on mood and autobiographical memory in a group of individuals with dementia living in care homes. For the purpose of this this review, only autobiographical memory outcomes were assessed. The study included 17 individuals with dementia and participants were randomly allocated to an intervention (life review) or control group (care as usual). The life review group participated in 12 or more weekly sessions of individual structured life review. Sessions were approximately 30-60 minutes in length. The life review progress was based on Haight's Life Review model and the Life Review Experiencing Form (LREF, Haight, 1992) and ended with the creation of a life story book. Appropriate test methods were used to measure autobiographical memory at baseline, post-intervention and at six-week follow-up. Appropriate statistical analyses revealed significant improvements in personal semantic memory in the life review group, but not in episodic autobiographical memory following intervention. The personal semantic memory improvements were maintained at the six-week follow-up.

A strength of this study is the adoption of a structured intervention protocol (LREF) for the life review process. Limitations include small sample size, the primary researcher guiding the intervention, and weak inclusion and exclusion criteria.

Overall, this article provides suggestive evidence for the effectiveness of individual life review at improving autobiographical memory compared to usual care for individuals with mild to moderate dementia.

Lalanne et al., (2015) conducted an RCT comparing two cognitive training programs aimed at improving autobiographical memory (semantic and episodic) and mood for individuals with early to moderate Alzheimer's disease. For the purpose of this review, only autobiographical memory outcomes were assessed. The study included 33 individuals with early to moderate Alzheimer's disease and these individuals were randomly assigned to either a REMau program (reminiscence based) or to a cognitive training program (control). Participants individually completed a weekly one-hour session of their designated program for six weeks. Individuals in the REMau program were presented with autobiographical information related to their personal life, family members and events, across the life span. The control group was trained on general semantic memory related to famous individuals using a standardized derived version of the test of famous persons (Piolino, P., Lamidey, V., Desgranges, B., & Eustache, F., 2007). Appropriate test methods were used to measure total autobiographical memory, semantic memory, and episodic memory at baseline, post-intervention (six weeks), and two weeks follow up. Appropriate statistical analyses revealed that individuals in the REMau program had significant improvements in episodic and semantic autobiographical memory, and these improvements were maintained two weeks post treatment. Individuals in the control cognitive training program displayed a decrease in autobiographical memory performance.

Strengths of this study include strong inclusion and exclusion criteria, and the use of a standardized reminiscence program which allows for replicable methods. A limitation includes small sample size.

Overall, this article suggests highly suggestive evidence for the effectiveness of the REMau cognitive training program at improving autobiographical memory across the lifespan for individuals with early to moderate Alzheimer's disease.

Non-Randomized Clinical Trials

Non-randomized controlled trials are considered to be Level 2a evidence for research design (Oxford Centre for Evidence-based Medicine, 2009). This design provides a high level of evidence as it uses a control condition to determine if outcomes are associated with the intervention. Confounding variables may occur as this design is quasi-experimental.

Melendez et al. (2015) conducted a quasi-experimental single blind study to examine the effects of reminiscence therapy on autobiographical memory in amnesic mild cognitive impairment and Alzheimer's disease groups. Researchers sought to determine the effects of reminiscence therapy on different life stages of autobiographical memory (childhood, early adult, recent life), and the effectiveness after a follow-up period. For the purpose of this critical review, only the results from the Alzheimer's disease group were reviewed. The study included 30 individuals with Alzheimer's disease who were recruited from two adult day centers in Valedina, Spain. Individuals were blindly allocated to either a treatment (reminiscence therapy) or control (usual care) group. The treatment group engaged in 30-minute group reminiscence therapy sessions twice per week for a total of 20 sessions. Sessions focused on all life stages (childhood, early adult, recent life) using different topics, activities and memory elicitors (i.e. music, images and objects). Appropriate test methods were used to measure autobiographical memory (total, episodic and semantic) for each life stage at baseline, 10 weeks (post-intervention) and 2 months (follow-up). Appropriate statistical analyses revealed that episodic autobiographical memory was significantly improved from baseline to post intervention in the treatment group.

Strengths of this study include strong inclusion and exclusion criteria, description of participant characteristics, and high inter-rater reliability scores. The control group was proven to be closely matched to the intervention group as baseline. Limitations include small sample size and no blinding of assessors. Unclear definition and description of the group reminiscence therapy used does not allow for replicable methods.

Overall, this article presents suggestive evidence for the effectiveness of group-based reminiscence therapy at improving autobiographical memory for individuals with dementia.

Discussion

This critical review found mixed results for the effectiveness of reminiscence therapy to improve autobiographical memory for individuals with dementia. Much of the existing literature examined the effectiveness of reminiscence therapy using different approaches. Reminiscence therapy intervention described in this critical review can be grouped in to the following categories: Group-based reminiscence and individual-based reminiscence.

Group-based Reminiscence

Group-based reminiscence therapy has suggestive evidence for its efficacy in improving autobiographical memory for individuals with dementia. The effectiveness of group-based reminiscence therapy was assessed by three studies. Two studies included the use of strong study designs, large sample sizes and replicable methods (Kirk et al, 2018, Woods et al, 2012). Kirk and colleagues (2018) found that group-based immersive reminiscence therapy (IRT) was effective at improving object cued episodic memories; however, this measure was closely linked to key aspects of the intervention (i.e. object-cueing). As a result, long-term effects may be less likely even if a follow-up measure was implemented.

Woods and colleagues (2012) found that structured group-based reminiscence therapy following the RYCT manual was not effective at improving autobiographical memory in individuals with dementia. These results are not consistent with the results of the other studies reviewed. This study had poor participant retention rate despite having a very large sample size. Compliance analyses revealed that autobiographical memory was improved at 3 months, indicating the treatment protocol may be beneficial to individuals who attend sessions as planned; however, further research is required to determine the variables associated with poor participant retention. It is important to note that this study was the only study that included participant caregivers in the reminiscence therapy intervention. Caregiver factors such as stress and fatigue may have limited participant buy in and attendance.

Melendez and colleagues (2015) provided suggestive evidence that group-based reminiscence was effective at improving episodic autobiographical memory; however, there were no long-term effects associated. Limitations such as small sample size, and unclear description of the reminiscence therapy used limit the application of results to clinical practice.

None of the studies mentioned above used active control groups in their methodologies. Further studies using “active” control groups would help determine whether improvements in autobiographical memory were not attributed to other factors (i.e. social contact). Overall, continued research is required to determine the long-term effectiveness of group-based reminiscence therapy using replicable reminiscence protocols.

Individual-based Reminiscence

Individual-based reminiscence therapy has highly suggestive evidence for its efficacy in improving autobiographical memory for individuals with dementia. The effectiveness of individual-based reminiscence therapy was assessed by three studies. Two studies revealed that the use of life story books and chronologically reviewing significant past events was effective at improving autobiographical memory (Morgan & Woods, 2010, Subramaniam et al, 2014). Morgan & Woods (2010) determined that there were long-term effects of life-review therapy on personal semantic autobiographical memory for individuals with dementia. Subramaniam and colleagues (2014) determined that the life review process and the creation of life story books with or without involving the person with dementia is effective at improving autobiographical memory. These results indicate that a life story book may be considered an effective intervention alone and a personalized life review process may not be required. Lalanne and colleagues (2015) determined that the REMau cognitive training program is effective at improving autobiographical memory long-term for individuals with Alzheimer’s disease.

Overall, the reviewed individual-based reminiscence studies provide strong replicable methods that can be applied to clinical practice; however, further research is required to replicate these findings with larger sample sizes. Again, it would be valuable to include “active” control groups in future studies.

Conclusion

The current literature provides suggestive evidence that reminiscence therapy is effective at improving autobiographical memory in individuals with dementia. It cannot be conclusively stated that either group-based or individual-based reminiscence therapy is superior as both have evident benefits. The long-term effects of reminiscence therapy on autobiographical memory have yielded mixed results. Further research is required to determine which specific approach is most effective at making long-term autobiographical memory related gains.

Clinical Implications

Due to the overall highly suggestive nature of research results, reminiscence therapy may be an effective intervention for improving autobiographical memory for individuals with dementia. It is important to note that there are several reminiscence therapy approaches investigated in the literature. SLPs should thoughtfully examine each approach prior to

implementing one for their client in order to meet individual needs and promote success.

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