



Co-funded by the
Erasmus+ Programme
of the European Union

Disclaimer

"The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

What's the evidence?

Montessori-based interventions for people with dementia in a residential aged-care setting

Jade Cartwright and Elizabeth Oliver

THIS ARTICLE
HAS BEEN
PEER-
REVIEWED



Jade Cartwright
(top) and
Elizabeth Oliver

There are currently over 322,000 Australians living with dementia, with that number projected to increase to 553,285 by 2030 (Access Economics, 2011; AIHW, 2015). Each week, there are more than 1,800 new cases of dementia diagnosed in Australia; equating to approximately one new diagnosis every six minutes (Alzheimer's Australia, 2015). Furthermore, more than 50% of people living in residential aged-care facilities have dementia, presenting with complex care needs (AIHW, 2012). Governments worldwide have recognised the need for concerted action (WHO, 2012), stimulating increased interest in new systems and care models with greater a focus on quality of care and the satisfaction and well-being of care recipients (ADI, 2013; Roberts, Morley, Walters, Malta, & Doyle, in press, 2015). The aged-care sector in Australia is undergoing significant reform, with a move towards consumer-directed care and wellness, reablement, and restorative services (Hornsey, 2015). While representing a positive step forward, access to therapeutic services for people with dementia remains limited and quality of care highly variable. This is despite a growing evidence base demonstrating the value of non-pharmacological interventions for people with dementia (Cabrera et al., in press, 2015; Cohen-Mansfield, Jensen, Resnick, & Norris, 2011; Cooper et al., 2012). This edition of "What's the evidence?" examines the evidence base for a specific non-pharmacological intervention, the Montessori approach, with particular attention to the role of speech-language pathology in supporting a service innovation.

Clinical scenario

You are a speech-language pathologist (SLP) working for an aged-care organisation committed to the provision of person-centred care. The senior occupational therapist has played an instrumental role in championing service innovation within the organisation, most recently advocating for the adoption of the Montessori approach by creating a dedicated memory support unit for 14 residents with dementia. You are familiar with the term "Montessori" as it applies to education; however have not previously experienced its application to dementia care.

Response to this scenario

You are open-minded and welcoming of the opportunity to be part of a new service innovation. You are acutely aware of the need to provide meaningful activities for people with dementia and enriching environments that promote engagement, personhood, and quality of life. This responds to research demonstrating that residents with dementia spend a large proportion of their day alone in passive

activities that can lead to boredom, loneliness, and the emergence of behaviours of concern, such as agitation and aggression, which can be problematic for family and staff (Beuttner, Lundegren, Lago, Farrell, & Smith, 1996; Ice, 2002; Moyle, McAllister, Venturato, & Adams, 2007). Furthermore, you are a strong advocate for non-pharmacological interventions, acknowledging that people with dementia retain the capacity and desire to learn, to participate and remain socially connected across all stages of the condition (Malone & Camp, 2007). To extend your knowledge you decide to appraise the evidence base for Montessori-based interventions for people with dementia.

Developing an answerable clinical question

To respond to this clinical scenario you first develop an answerable clinical question following the steps outlined in O'Holloran and Rose (2010). After considering the patient or problem, intervention, comparison intervention, and outcomes (see Table 1) you formulate the following clinical question: "What evidence is there for Montessori-based interventions for people with dementia living in residential aged care facilities?"

Searching for the evidence

You search a number of databases including Medline, PsychINFO, and ScienceDirect using the search terms listed in Table 1. You also search Google Scholar and the speechBITE™ database to ensure that all relevant records are identified. You search for the "patient or problem" and "intervention" keywords separately and then combine the results of each of these searches. You then review the

Table 1. Search terms

| PICO | Search terms |
|-------------------------|--|
| Patient or problem | dementia aged care long term care |
| Intervention | Montessori Montessori-based activities Montessori-based intervention Montessori programming |
| Comparison intervention | No search terms – you are only interested in Montessori interventions |
| Outcomes | No search terms – you are interested in any treatment outcome |

| Table 2. Articles identified | | |
|---------------------------------|---|-------------------------|
| Authors | Overview | NHMRC level of evidence |
| Giroux et al. (2010) | Quasi-experimental design evaluated the short term effects of a Montessori approach for residents with cognitive impairments as compared to regular activities. Small, yet significant elevation in affect seen in the Montessori condition, with residents actively engaged for a greater proportion of time. | III-2 |
| Jarrott et al. (2008) | Investigated effects of Montessori based activities delivered in small parallel groups (i.e., each resident uses own materials to complete tasks at own pace). Supports the provision of Montessori activities in a small group setting. | IV |
| Lee et al. (2007) | Randomised crossover design investigated effects of intergenerational Montessori-based programming on the engagement of residents with dementia. Higher levels of constructive engagement observed during intergenerational programming as compared to standard activities. | II |
| Lin et al. (2011) | Randomised crossover design investigated the efficacy of applying a Montessori intervention to improve the eating ability and nutritional status of residents with dementia. The findings support a Montessori-based, early intervention protocol to assist residents with dementia to maintain self-feeding ability for as long as possible. | II |
| Mahendra et al. (2006) | Systematic review and classification of the literature related to Montessori-based interventions for people with Alzheimer's disease. Class II and Class III evidence reported, supporting use of Montessori-based interventions. | II |
| Roberts et al. (in press, 2015) | Pilot study evaluated a person-centred care model featuring Montessori-based activities. Demonstrated that organisation change is possible, with positive impact on residents' daily life and staff and family satisfaction. | IV |
| Skrajner & Camp (2007) | Investigated whether people with dementia can be trained to lead Montessori group activities. Demonstrated that training, simplified materials, and a controlled environment can enable people in the early to middle stages of dementia to lead Montessori group activities. | IV |

| Table 3. Critically appraised article | |
|---------------------------------------|--|
| Citation | van der Ploeg, E.S., Eppingstall, B., Camp, C.J., Runci, S.J., Taffe, J., & O'Connor, D.W. (2013). A randomized crossover trial to study the effect of personalized, one-to-one interaction using Montessori-based activities on agitation, affect, and engagement in nursing home residents with dementia. <i>International Psychogeriatrics</i> , 25(4), 565–575. |
| Design | Randomised crossover trial |
| Level of evidence | II |
| Participants | 44 people with dementia (29 severe, 13 moderate, and 2 mild dementia); average age 78.1 years. Participants were current residents of a dementia unit or specialist psychogeriatric nursing home. |
| Experimental group | Personalised one-to-one activities delivered using Montessori principles were compared to a non-personalised activity (e.g., engaging in everyday conversation, looking at pictures in a newspaper). |
| Results | Agitated behaviour counts reduced by 50% and 42% respectively in the Montessori and control conditions. The Montessori condition generated more positive affect and constructive engagement. The Montessori intervention was more effective in reducing agitation for participants who had lost fluency in English (all from non-English speaking backgrounds). Maintenance of effects during the 30 minutes directly after the interventions was limited. |
| Clinical bottom line | Personalised activities are effective in eliciting more positive mood and constructive engagement for people with mild to severe dementia. Montessori interventions are especially suited for calming residents who have lost English language fluency. |

abstracts to identify publications relevant to the clinical question. Your initial search returns 32 articles, of which 18 are relevant to the topic. Of these, seven were directly related to the clinical scenario and selected for review. The National Health and Medical Research Council (NHMRC) intervention hierarchy (NHMRC, 2009) was used to determine the levels of evidence, listed in Table 2 along with an overview of each article. Table 3 provides a more

detailed critical appraisal of one article with the strongest research design.

The reviewed articles provide consistent evidence for the benefits of Montessori-based interventions for people with dementia. When compared to regular or routine activities (non-personalised), Montessori approaches were more effective in improving constructive engagement levels, associated with positive affect and signs of enjoyment

(Giroux et al., 2010; Mahendra et al., 2006; van der Ploeg et al., 2009). Furthermore, the Montessori approach enabled residents to adopt meaningful roles that reflect past interests and current abilities, allowing them to contribute and feel worthwhile (e.g., leading small group activities, delivering mail, gardening, setting the table).

Most of the appraised studies report findings of one-off projects investigating the efficacy of Montessori activities in comparison to routine or non-personalised activities. This is with the exception of Roberts et al. (in press, 2015), who successfully embedded Montessori principles into a new model of care that created a more homely and person-centred care environment and reduced antipsychotic and sedative prescription rates. This study provided qualitative evidence that Montessori-based interventions were well received by family members and allowed staff to feel better equipped to support residents to express their identity and provide opportunities for personal choice.

Future research should extend the current evidence base, with larger sample sizes and more robust randomised control trials required. This should compare the Montessori approach to other evidence-based interventions and systematically assess the ideal dosage and relative effects of Montessori principles. Many of the studies reviewed did not provide extensive demographic information regarding participants; however, the majority of trials appeared to involve participants with Alzheimer's disease. The application of a Montessori approach to other types of dementia, such as frontotemporal dementia and primary progressive aphasia, should be investigated. Interestingly, the reviewed studies did not assess the communication outcomes of Montessori-based interventions or collect any qualitative feedback directly from the participants with dementia themselves.

Clinical bottom line

After appraising the available literature you return to your clinical question and determine the clinical bottom line. There is Level II evidence for the efficacy of Montessori-based interventions for people with mild to severe dementia. As such, you are satisfied that a sufficient body of evidence supports the organisation's plans to implement a Montessori approach within the memory support unit. You feel confident that this could enhance provision of person-centred care and improve resident engagement, mood and behaviour; as well as the satisfaction of staff and family members. You discuss your findings with your occupational therapy colleague.

Speech-language pathologists can help facilitate Montessori-based interventions

Learning more about the application of Montessori principles to dementia care you identify a clear role for speech-language pathology. As a core principle of Montessori-based interventions, activities and roles must be tailored to an individual's interests and their current level of functioning (Malone & Camp, 2007). This requires comprehensive assessment of both cognitive and physical capabilities (Roberts et al., in press, 2015) and should include assessment of communication and language skills. As such, SLPs can help identify what activities and roles are suited to an individual resident based on communication capabilities (e.g., ability to join a reading group or read to other residents), as well as tailored cues, scaffolds, and environmental supports (e.g., accommodated instructions to support a resident with comprehension or hearing difficulties). Furthermore, Montessori principles can be embedded into communication or reminiscence groups (Jarrott et al., 2008); and many communication and swallowing-related tasks and functions can be trained using a Montessori approach (e.g., eating abilities such as

scooping food, lifting, or taking a bite; Lin et al., 2011). Given the prepared nature of Montessori activities and the increased focus on procedural (rather than verbal) aspects of a task, the approach is also well suited to clients with communication difficulties.

Montessori principles can be embedded into routine care delivery

A noted concern across the reviewed studies relates to the limited maintenance of engagement, behaviour, and mood effects immediately following completion of a Montessori activity. As such, you identify the importance of embedding Montessori principles into routine care delivery, rather than viewing the approach as a discrete or standalone intervention. Roberts et al. (in press, 2015) demonstrated that implementation at a service level is possible, enabled by strong leadership and use of Montessori champions, effective education and training strategies, and active engagement of key stakeholders in the planning, development, and implementation stages. Interestingly, ongoing support from an experienced dementia consultant was provided to staff throughout the 18-month trial, with "education outreach" representing a documented knowledge translation strategy (Power, 2014).

A wide range of people can be trained to facilitate Montessori-based interventions

The available evidence suggests that a wide range of people can be trained to facilitate Montessori activities, including family members, volunteers, and people with mild to moderate dementia. This is important for supporting the sustainability of the innovation and you identify potential to train SLP and occupational therapy students to deliver Montessori programs as part of scheduled clinical placements. Preliminary evidence also supports the delivery of Montessori-activities in small group settings, which may offer more feasible staff-to-client ratios and greater opportunity for socialisation between residents (Jarrott et al., 2008).

Resources are available to help translate Montessori principles into practice

In completing this review you were pleased to discover a range of resources that could assist dementia care teams to deliver Montessori-based interventions. There are articles that clearly describe and apply Montessori principles, providing illustrative case studies, examples of Montessori goals and session plans, and evidence-based practice guidelines (e.g., Mahendra et al., 2006; Malone & Camp, 2011; Orsulic-Jeras, Schneider, Camp, Nicholson, & Helbig, 2001). Gail Elliot's 2011 textbook is another useful resource that outlines theoretical principles as well as practical tools, forms and templates for translating Montessori Methods for Dementia™ into practice. Alzheimer's Australia Vic (2013) has also released a Montessori resource manual that is freely downloadable and provides a range of activity ideas for individual and group sessions.

Conclusion

Should your organisation consider implementing the Montessori approach for residents with dementia? In your view, there is satisfactory evidence to support use of Montessori-based interventions within the memory support unit, with potential for significant clinical impact. This would assist the organisation to meet accreditation standards, while demonstrating a direct response to current policy directives and care priorities promoting the provision of proactive, person-centred interventions and enabling

environments for residents with dementia. Furthermore, embedding Montessori principles into routine care delivery provides a significant opportunity to shift attitudes and combat stigma, demonstrating that people with dementia are capable of learning and must be provided with opportunities for engagement in meaningful roles and activities. Speech-language pathologists can play an important role in championing change and helping people with dementia reach their potential.

References

- Access Economics. (2011). *Dementia across Australia: 2011-2050*. Report for Alzheimer's Australia. Sydney: Deloitte Access Economics Pty Ltd.
- Alzheimer's Australia. (2015). *Key facts and statistics 2015*. Retrieved 2 Feb. 2015 from www.fightdementia.org.au
- Alzheimer's Australia Vic. (2013). *Relate, motivate, appreciate: A Montessori resource*. Retrieved 2 Feb. 2015 from https://fightdementia.org.au/sites/default/files/AlzheimersAustralia_Montessori_Resource_WEB.pdf
- Alzheimer's Disease International (ADI). (2011). *World Alzheimer Report 2011: The benefits of early diagnosis and intervention*. London: Author.
- Australian Institute of Health and Welfare (AIHW). (2015). *Dementia in Australia*. Canberra: Author.
- Australian Institute of Health and Welfare (AIHW). (2012). *Residential aged care in Australia 2010-11: A statistical overview*. Aged care statistics series no. 36. Cat. No. AGE 68. Canberra: AIHW.
- Buettner, L. L., Lundegren, H., Lago, D., Farrell, P., & Smith, R. (1996). Therapeutic recreation as an intervention for persons with dementia and agitation: An efficacy study. *American Journal of Alzheimer's Disease and Other Dementias*, 11(5), 4-12.
- Cabrera, E., Sutcliffe, C., Verbeek, H., Saks, K., Soto-Martin, M., Meyer, G., ... Zabalegui, A. (in press, 2015). Non-pharmacological interventions as a best practice strategy in people with dementia living in nursing homes: A systematic review. *European Geriatric Medicine*, 6(2), 134-150.
- Camp, C. J., & Lee, M. (2011). Montessori-based activities as a transgenerational interface for persons with dementia and preschool children. *Journal of Intergenerational Relationships*, 9, 366-373.
- Cohen-Mansfield, J., Jensen, B., Resnick, B., & Norris, M. (2011). Knowledge of and attitudes toward non-pharmacological interventions for treatment of behavioural symptoms associated with dementia: A comparison of physicians, psychologists, and nurse practitioners. *The Gerontologist*, 52(1), 34-45.
- Cooper, C., Mukadam, N., Katona, C., Constantine, G., Ames, D., Rabins, P., ... Livingston, G. (2012). Systematic review of the effectiveness of non-pharmacological interventions to improve quality of life of people with dementia. *International Psychogeriatrics*, 24(6), 856-870.
- Elliot, G. (2011). *Montessori methods for dementia™: Focusing on the person and the prepared environment*. Moonah, Tas.: The Franklin Press.
- Giroux, D., Robichaud, L., & Paradis, M. (2010). Using the Montessori approach for a clientele with cognitive impairments: A quasi-experimental study design. *International Journal of Aging and Human Development*, 71(1), 23-41.
- Hornsey, C. (2015). Reablement: Ready or not? *Community Care Review*, 1, 20-21.
- Ice, G. (2002). Daily life in a nursing home: Has it changed in 25 years? *Journal of Aging Studies*, 16, 345-359.
- Jarrott, S. E., Gozali, T., & Gigliotti, C. M. (2008). Montessori programming for persons with dementia in the group setting: An analysis of engagement and affect. *Dementia*, 7(1), 109-125.
- Lee, M. M., Camp, C. J., & Malone, M. L. (2007). Effects of intergenerational Montessori-based activities programming on engagement of nursing home residents with dementia. *Clinical Interventions in Aging*, 2(3), 477-483.
- Lin, L. C., Huang, Y. J., Watson, R., Wu, S. C., & Lee, Y. C. (2011). Using a Montessori method to increase eating ability for institutionalised residents with dementia: A crossover design. *Journal of Clinical Nursing*, 20, 3092-3101.
- Mahendra, N., Hopper, T., Bayles, K. A., Azuma, T., Cleary, S., & Kim, E. (2006). Evidence-based practice recommendations for working with individuals with dementia: Montessori-based interventions. *Journal of Medical Speech-Language Pathology*, 14(1), xv-xxv.
- Malone, M. L., & Camp, C. J. (2007). Montessori-based dementia programming@: Providing tools for engagement. *Dementia*, 6, 150-156.
- Moyle, W., McAllister, M., Venturato, L., & Adams, T. (2007). Quality of life and dementia: The voice of the person with dementia. *Dementia*, 6(2), 175-191.
- O'Halloran, R., & Rose, T. (2010). What's the evidence? Communicatively accessible healthcare environments. *ACQuiring Knowledge in Speech, Language and Hearing*, 12(3), 123-126.
- Orsulic-Jeras, S., Schneider, N. M., Camp, C. J., Nicholson, P., & Helbig, M. (2001). Montessori-based dementia activities in long-term care: Training and implementation. *Activities, Adaptation & Aging*, 25(3-4), 107-120.
- Power, E. (2014). The effectiveness of knowledge transfer and exchange interventions for implementing rehabilitation evidence into clinical practice. *Journal of Clinical Practice in Speech-Language Pathology*, 16(1), 24-29.
- Roberts, G., Morley, C., Walters, W., Malta, S., & Doyle, C. (in press, 2015). Caring for people with dementia in residential aged care: Successes with a composite person-centered care model featuring Montessori-based activities. *Geriatric Nursing*, 36(2), 106-110.
- Skrajner, M. J., & Camp, C. J. (2007). Resident-assisted Montessori programming (RAMP™): Use of a small group reading activity run by persons with dementia in adult day health care and long-term care settings. *American Journal of Alzheimer's Disease and Other Dementias*, 22(1), 27-36.
- van der Ploeg, E. S., Eppingstall, B., Camp, C. J., Runci, S. J., Taffe, J., & O'Connor, D. W. (2013). A randomized crossover trial to study the effect of personalized, one-to-one interaction using Montessori-based activities on agitation, affect, and engagement in nursing home residents with Dementia. *International Psychogeriatrics*, 25(4), 565-575.
- World Health Organization. (2012). *Dementia: A public health priority*. Geneva: Author.

Jade Cartwright is a lecturer at the University of Melbourne, School of Health Sciences. **Elizabeth Oliver** is a senior occupational therapist with Catholic Homes Inc.

Correspondence to:

Jade Cartwright

Lecturer

Department of Audiology & Speech Pathology

The University of Melbourne

550 Swanston Street, Melbourne, VIC, 3010

E: jade.cartwright@unimelb.edu.au