


# Intervention Fidelity of a Volunteer-Led Montessori-Based Intervention in a Canadian Long-Term Care Home

Paulette V. Hunter,<sup>1</sup> Amanda Rissling,<sup>1</sup> Leticia Pickard,<sup>1</sup> Lilian Thorpe,<sup>1</sup>  and Thomas Hadjistavropoulos<sup>2</sup>

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## RÉSUMÉ

Les interventions basées sur la méthode Montessori (IBM) ont été développées en vue de promouvoir la participation guidée de personnes atteintes de démence à des activités significatives. Dans cette étude, la fidélité à l'IBM de bénévoles œuvrant en centres de soins a été évaluée à partir d'un devis principalement descriptif et qualitatif. Nous avons effectué une analyse déductive du contenu de huit entretiens avec des bénévoles en utilisant le cadre conceptuel sur la fidélité aux interventions. Nous avons également calculé les scores moyens des bénévoles et des résidents dans le *Visiting Quality Questionnaire* (VQQ), qui permet d'évaluer la perception des visites par les bénévoles et les résidents. Les résultats montrent clairement que les bénévoles ont assisté aux visites prévues, qu'ils ont utilisé des activités prédéfinies et ont suivi les recommandations des formations. La plupart ont déclaré avoir apprécié les visites (VQQ  $\bar{x}$  = 6,12, ET = 0,75) et avoir reçu une réponse positive des résidents (VQQ  $\bar{x}$  = 5,46, ET = 0,88). Néanmoins, l'utilisation d'activités prédéfinies et la réponse à l'IBM ont été plus faibles pour les bénévoles s'occupant de résidents atteints de démence avancée. Ainsi, dans l'ensemble, la fidélité dépendait de l'état cognitif du résident.

## ABSTRACT

Montessori-based interventions (MBIs) were developed to promote guided participation in meaningful activities by people with dementia patients. In this study, we assessed nursing home volunteers' fidelity to an MBI, relying primarily on a qualitative descriptive design. We completed a deductive content analysis of eight volunteer interviews using the Conceptual Framework for Intervention Fidelity. We also calculated average volunteer and resident scores on the Visiting Quality Questionnaire (VQQ), which assesses volunteers' and residents' perceptions of visits. We found good evidence that volunteers attended scheduled visits, made use of pre-designed activities, and attended to training recommendations. Most reported enjoying the visits (VQQ  $\bar{x}$  = 6.12, standard deviation [SD] = 0.75) and receiving a positive response from residents (VQQ  $\bar{x}$  = 5.46, SD = 0.88). Nevertheless, use of pre-designed activities and response to the MBI was lower for volunteers working with residents who had late-stage dementia. Therefore, overall, fidelity depended on the cognitive status of the resident.

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<sup>1</sup> St. Thomas More College, University of Saskatchewan, Saskatoon, Saskatchewan.

<sup>2</sup> Department of Psychology, University of Regina, Regina, Saskatchewan.

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La correspondance et les demandes de tirés-à-part doivent être adressées à : / Correspondence and requests for offprints should be sent to:

Paulette Hunter, Ph.D.  
St. Thomas More College  
University of Saskatchewan

1437 College Drive  
Saskatoon, SK, S7N 0W6  
Canada  
([phunter@stmcollege.ca](mailto:phunter@stmcollege.ca))

Improving quality of life remains a significant challenge in long-term care (LTC) and dementia care environments. Montessori-based interventions (MBIs) were developed to support life quality in dementia by emphasizing participation in meaningful roles and/or activities (Wilson et al., 1997). Currently available research suggests that, among other positive effects, MBIs have the potential to increase active engagement, improve mood, and reduce agitation (Sheppard, McArthur, & Hitzig, 2016). Nevertheless, increasing the use of MBIs in LTC may require additional resources.

Researchers have begun to examine whether volunteerism has the potential to enhance psychosocial care in resource-strained LTC environments. van der Ploeg, Mbakile, Genovesi, and O'Connor (2012) confirmed that it was feasible to involve volunteers in group activities and individual visits with LTC residents with dementia, and Söderhamn, Landmark, Aasgaard, Eide, and Söderhamn (2012) found that volunteers experienced their work in psychosocial dementia care positively. There has also been limited study of volunteer or non-expert delivery of MBIs. For example, van der Ploeg, Walker, and O'Connor (2014) examined the feasibility of volunteer involvement in MBIs for LTC residents who had dementia and agitated but non-aggressive behaviour. Overall, volunteers found the experience very rewarding, but some felt discouraged on occasion, when their visits did not alleviate agitation or if they were unable to engage the resident in the MBI. Schneider and Camp (2003) trained family members to implement an MBI with LTC residents who had dementia, and found improved life satisfaction, mastery, reduced burden, and better visiting experiences. Finally, Hunter, Thorpe, Hounjet, and Hadjistavropoulos (2020) examined the acceptability and feasibility of a volunteer-delivered MBI from the perspective of LTC staff. Staff reported that the MBI provided essential psychosocial support to residents; however, they believed that residents with late-stage dementia benefited less.

When non-experts, including volunteers, are responsible for intervention delivery, intervention integrity, or fidelity, is a particular concern. Intervention fidelity is the degree to which programs or interventions are implemented as intended (Carroll et al., 2007). Developing an understanding of the determinants of intervention fidelity provides a foundation for the study of intervention effectiveness (Carroll et al., 2007).

## The Conceptual Framework for Intervention Fidelity

To encourage more comprehensive assessments of intervention fidelity, Carroll et al. (2007) proposed a Conceptual Framework for Intervention Fidelity (CFIF). The CFIF emphasizes *adherence* (intervention content, frequency, duration, and coverage) as the key measure of fidelity. Other elements of the framework are considered moderators of adherence (see Figure 1). These include (1) intervention complexity, (2) facilitation strategies to optimize and standardize implementation, (3) delivery quality, and (4) participant responsiveness. *Complexity* refers to the structure of the intervention (simpler intervention models, higher levels of structure, and specific requirements are generally associated with higher adherence; Carroll et al., 2007). *Facilitation strategies* are resources (e.g., manuals, training, or monitoring and feedback) to promote adherence. These vary by intervention, and the need for them depends partly on intervention complexity. *Delivery quality* refers to how closely delivery approximates a theoretical ideal; for example, if intervention relies on reading a manual, and there is evidence that many of those who delivered the intervention did not read the manual, this suggests poor quality. Finally, *participant responsiveness* refers to the extent to which participants were engaged in or satisfied with the intervention (a result usually distinguishable from the anticipated intervention outcome). A poor response can be seen as an impediment to high-fidelity implementations.

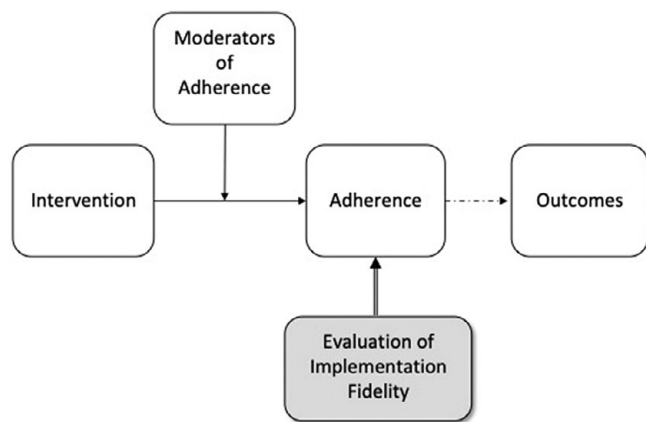
## Methods

### Objective

The objective of this study was to evaluate the fidelity of a volunteer-led MBI, including any associated strengths and limitations, using the CFIF.

### Context

The study took place within a special dementia unit (SDU) in a non-profit LTC facility in Western Canada. The LTC is home to 129 residents, and the SDU is home to 49 residents with dementia. Although the SDU provides regularly scheduled group recreational activities, prior to the study, volunteer presence on the SDU was limited.



**Figure 1: Implementation fidelity evaluation. Adapted from Carroll et al. (2007)**

### The MBI

The research team created an array of more than 30 activity kits corresponding to the interests and abilities of participating residents, as reported in care records or by staff and family members. Activities were based on a manual (Elliot, 2012) and activity guides for dementia care (e.g., Camp, 2006), and spanned four domains emphasized in MBIs: practical, sensorial, cognitive, and sociocultural. Activity kits were stored in transparent plastic containers, numbered, and placed in a conveniently accessible storage area. Each contained brief instructions on a large-font laminated page, including suggestions to make the activity more or less challenging. After pre-testing, a chart identifying activities that best matched each resident's interests and abilities was posted in the storage area. A profile outlining each resident's activity interests and current functioning (i.e., sensory, motor, cognitive) was also made available.

### Participants

A convenience sample of 18 community volunteers was recruited by the partnering LTC home to participate in a trial of the MBI (Devers & Frankel, 2000). After expressing interest, volunteers were provided with detailed information about the nature of the requested commitment and given the opportunity to consent or refuse participation. Those who consented were assigned to one of two volunteer experiences, only one of which is a focus of the current study. Specifically, nine volunteers received MBI training immediately, and participated in the MBI evaluation that we report on here. Nine additional volunteers were assigned to more traditional roles (e.g., assisting residents at mealtimes; social visits), and participated in a separate evaluation. Three of the nine participants in this study (33%) were men, and six (67%) were women. Their ages ranged from 22 to 55 ( $\bar{x} = 35$ ,  $SD = 13$ ). On average,

volunteers had 15 ( $SD = 2$ ) years of education. Only one (11%) had prior volunteer experience in LTC, and none had prior training or experience working with residents with dementia, or working in an SDU. One was studying to be a teacher and was generally familiar with the Montessori approach to education.

### Volunteer Training

Volunteers received a total of approximately 5 hours of training across three sessions. During the first session, volunteers learned about dementia and received an overview of the MBI. During the second, they learned how to conduct a Montessori visit, acquired experience with several activities, and reviewed a profile of the interests and abilities of the resident with whom they had been matched. During the third session, they learned how to safely enter and leave the SDU and how to access resources for the MBI. At this time, they also met the residents for the first time.

### Procedure

Following institutional review board ethical clearance, volunteers were asked to complete a minimum of 10 scheduled visits and 10 additional visits at their own convenience. Scheduled visits were scheduled to take place between the hours of 1300 and 2000 p.m. If either member of the dyad was unavailable, volunteers were asked to visit at their own convenience between 1:00 and 8:00 p.m. A research assistant closely observed the participating resident during each scheduled visit to assess resident outcomes (these are reported separately). This assistant also documented whether the volunteer and/or the resident attended, and administered a questionnaire to the volunteer following the visit. A second research assistant interviewed each volunteer after the first five visits, the next five visits, and after 2 months. The first two interviews lasted approximately 15–30 minutes, and the last, approximately 30–45 minutes. Interviews took place in a private meeting room at the LTC facility.

### Measures

#### Interviews

During the first two interviews, volunteers were asked to describe the range of activities that they had invited residents to participate in, how they believed the visits had gone, how comfortable they had been, and whether they had sufficient support and resources. During the final interview, participants were asked about changes to their visiting routine since the first 10 visits (which were pre-scheduled), general experiences initiating MBIs, and beliefs about the value of MBIs to LTC residents. They were also asked about whether the program met expectations, what they learned or gained,

suggestions for improvement, and (again) if they believed that they had adequate support and resources throughout the program.

#### *Visiting Quality Questionnaire (VQQ)*

Immediately after each of the first 10 visits, volunteers completed the 18-item VQQ created for this study to assess the perceived quality of a visit. The nine-item *Volunteer Response* subscale is a self-assessment of volunteer visiting experiences such as pleasure, interest, and comfort. The nine-item *Resident Response* subscale represents the volunteer's assessment of similar experiences on the part of the resident. Items are rated on a seven-point Likert type scale (higher ratings implying more positive responses). Both subscales of the VQQ evidenced high internal consistency (both  $\alpha = 0.97$ ) and high test-retest reliability at a 4-day interval ( $r = 0.96$  and  $r = 0.97$ , respectively).

#### *Analysis*

We analyzed interview, questionnaire, and observational data using the CFIF (Carroll et al., 2007), which assesses intervention *adherence* and associated moderators.

#### *Adherence*

Adherence to the MBI was assessed as: (1) the proportion of volunteers who gave specific evidence, during interviews, of using an MBI approach as opposed to relying on a general conversational visit; (2) the number of total possible visits received by residents; (3) the rate of volunteer attrition; and (4) the number of total possible visits made by volunteers.

#### *Moderators of adherence*

Moderators of adherence, including *delivery quality*, *facilitation strategies*, and *participant responsiveness*, were analyzed using qualitative content analysis, facilitated by Dedoose, version 8.0.42. One moderator, *participant responsiveness*, was additionally assessed using VQQ subscale means and standard deviations (SD) as indicators of participant responsiveness. Another CFIF moderator, *intervention complexity*, was excluded from the analysis because we found that all related interview data overlapped the category *facilitation strategies*.

Qualitative content analysis involves the categorization of textual units (Graneheim & Lundman, 2004). We employed a deductive approach to content analysis, which involves classifying units of text from interview transcripts into an already-existing framework, often drawn from theory (Sandelowski, 2000; Vaismoradi, Turunen, & Bondas, 2013). In this case, the framework was an adaptation of the CFIF (see first two columns of Table 1). In order to provide a more meaningful

description of the interview data associated with two categories, *facilitation strategies* and *participant responsiveness*, we inductively analyzed these data to generate subthemes. The first author completed this analysis, and the second author completed an audit of the trustworthiness of results. Specifically, the auditor reviewed the coding of all interviews against the coding framework, and generated a Likert agreement rating (on a scale of 1–5) of the extent to which each code was grounded in the data.

## **Results**

Eight volunteers completed an initial interview after their first week volunteering, a second after their second week of volunteering, and a third at the end of the study period. This represented a total of 24 interviews, and a participation rate of 100 per cent, excluding from consideration one volunteer who resigned before the first interview. An average audit rating of 4.63 supported the trustworthiness of the qualitative analysis of interview data. In addition, we found that the CFIF moderator categories *delivery quality*, *facilitation strategies*, and *participant responsiveness* were well saturated; that is, interview content substantially addressed each of these themes. Results are further described, in the two major categories of fidelity according to the CFIF: *adherence* and *moderators of adherence*. See Table 1 for an overview of results.

#### *Intervention Adherence*

##### *Coverage*

Overall, residents attended 78 of 80 (98.5%) scheduled visits: one resident missed two visits because of fatigue.

##### *Frequency*

Of the nine volunteers who originally agreed to participate in the evaluation of the MBI, eight (89%) fulfilled their commitment to visiting throughout the study period; one (11%) withdrew after four visits, reportedly because of an overcommitted schedule. Considering only the eight remaining volunteers, 66 of 80 planned visits were completed (82.5%). The most commonly reported reason for volunteer absence was an unexpected event (e.g., car trouble).

##### *Content*

During the interviews, all volunteers gave evidence of attempting to use the MBI. Four volunteers consistently used the activity kits designed for the MBI, and described generally good responses to these visits. Two volunteers appropriately integrated personal interests into the visits to a significant degree, by modifying existing activities or suggesting new ones; for example, a musician created activities that involved



**Table 1: Overview of research findings using an adapted conceptual framework for intervention fidelity**

Adherence Aspect	Indicator	Results
Content	Proportion of volunteers who used Montessori-based approach	• 100% used the MBI in multiple visits
Coverage	Proportion of visits received by residents	• 78/80 (97.5%)
Frequency	Proportion of visits made by volunteers	• 66/80 (82.5%)
	Volunteer attrition rate	• 1/9 (11.1%)
Adherence Moderator	Indicator	Results
Delivery quality	Volunteer interviews: description of strengths/weaknesses in delivery.  Deductive analysis focused on these aspects of delivery quality: use of MBI activities, modeling the activity first, accommodating disability, making every visit a success, and supervising the activity.	<ul style="list-style-type: none"> <li>• Most volunteers used Montessori activities during their visits. A few tended to rely on conversation as an adjunct or substitute.</li> <li>• Most volunteers appropriately modeled the activities to residents (i.e., provided non-verbal introduction).</li> <li>• There was good evidence that volunteers were responsive to the needs, interests, and abilities of residents.</li> <li>• There was good evidence that volunteers worked to ensure that residents felt engaged and successful during the visit.</li> <li>• Volunteers attentively supervised activities.</li> </ul>
Facilitation strategies	Volunteer interviews: description of facilitation strategies, and recommended strategies (inductive analysis)	<ul style="list-style-type: none"> <li>• Volunteers reported that initial training, an introduction to the resident, a workable visiting time, access to a diverse array of activities, access to staff support, and access to profiles of residents' interests and abilities facilitated their visits.</li> <li>• Volunteers recommended increasing the range of activities on a per-resident basis and providing more support when a resident was not engaging.</li> </ul>
Participant responsiveness	Visiting Quality Questionnaire: Resident Subscale score Visiting Quality Questionnaire: Volunteer Subscale score  Volunteer interviews: description of volunteer and resident responses (inductive analysis)	<ul style="list-style-type: none"> <li>• 5.46/7 (satisfied / good quality visit)</li> <li>• 6.12/7 (very satisfied / high quality visit)</li> <li>• Volunteers reported that residents' responses included recognition, acceptance, and engagement.</li> </ul>

**Note.** These results are based on an adaptation of the Conceptual Framework for Intervention Fidelity (CFIF) (Carroll et al., 2007). The leftmost column includes elements of the CFIF. The center column includes the fidelity indicators evaluated in this study. The rightmost column summarizes results.

keeping time to music by shaking a maraca. The remaining four volunteers gave evidence of having some difficulty adhering to the pre-designed activities consistently. In most cases, activities that supported important roles were substituted, consistent with a Montessori approach; for example, a volunteer who worked with a retired salesperson favoured a conversational approach. In three of the four cases, volunteers were matched to residents with late-stage dementia. Following some experimentation with pre-planned activities, these volunteers began to favour everyday activities that the resident seemed to enjoy (e.g., walking, spending time outdoors, or playing piano).

### Moderators of Intervention Adherence

#### Facilitation strategies

A number of facilitators were described during the interviews. Those most commonly mentioned included *initial training*, an *initial meeting* with the resident, access to a *profile of the resident's abilities and interests*, a *diverse array of activities* to choose from, a *workable visiting time*, and *support*

*from staff*. It was common for participants to mention these strategies spontaneously, and to name a number of these together, suggesting both that volunteers were aware of program resources and that they interpreted these as supports. See Table 2 for representative quotations.

#### Additional recommendations

Volunteers were asked for recommendations during the final interview, and these included: having an *increased range of activities*, providing *more time to get to know the resident* before using the MBI, providing *more support when a resident is not engaging*, providing *more training on non-verbal communication*, and providing *more training on problem-solving* (e.g., responding to critical incidents or other unusual occurrences). Nevertheless, other than the first theme, these did not have good saturation, suggesting that they were more important to some volunteers or dyads than to others (further addressed in the following text). See Table 3 for representative quotations.

Regarding volunteers' perceived need for an improved range of activities, most acknowledged that they could

**Table 2: Facilitative strategies**

Facilitative Strategies	Representative Quotation(s)
Initial training (6, 5, 4)	"Off the bat, getting a full four hours of training was substantial; like we got to know the very basis of the place, the understanding of the study, the activities that we were going over, specifics on a few activities, generally how to use the activities – that was fantastic. I felt that I was in a really good spot coming into it." (Volunteer 2, Final Interview)
Initial meeting (4, 4, 3)	"I was glad I was given an opportunity to meet him before my first visit... think there was maybe half an hour and, and I know I spent probably two hours total just getting to know [the resident] and [his family members]. Perhaps a bit more time allocated there could be valuable, although I'm not sure." (Volunteer 2, Final Interview)
Resident profile (20, 16, 7)	"The personal profiles in the, in the file – that was very helpful and so that gives me an idea of who I'm going to deal with and what, what his likes and dislikes are and yeah, it was always helpful to get to know the resident before you actually meet them so that was really, extremely helpful." (Volunteer 16, Final Interview)
Diverse array of activities (18, 10, 5)	"Actually finding that book [about a resident's country of birth] was like a godsend. That was great, because he really connected with it, like instantly. I don't know if that was obtained for him, but that was really, really good." (Volunteer 10, Second Interview)
Workable visiting time (11, 10, 7)	"I've tried to come like, right around this time. And catch him while he's either just leaving the dining room or he's just left the dining room after supper." (Volunteer 15, Final Interview)
Support from staff (22, 14, 7)	Q: Do you feel that you had enough information and support over the course of the program? A: "Yeah." Q: Was there anything in particular that was helpful? A: Well just talking to [staff member] after I just thought that I wasn't making a big impact. I didn't feel I was, but after I talked to her she, you know, supported me and gave me a good insight on, on how I, yes, I was making a difference." (Volunteer 8, Final Interview)

**Note.** In parentheses following each code is the number of interview excerpts to which the code was applied, followed by the number of interviews these excerpts occurred within, and lastly, the number of interviewees who raised the topic. This provides an indication of theme saturation.

**Table 3: Recommendations**

Recommendation	Representative Quotation(s)
Increased range of activities (15, 10, 6)	"I think that he's got enough cognition to like need a little bit more of a challenge so I don't think some of the basic activities would work with him. So it's kind of like trying to think about something that really fits what he would enjoy. So that's not a problem, but something that I work on, like try to think about." (Volunteer 10, Second Interview)
More support when a resident is not engaging (7, 4, 2)	"[I recommend] ongoing support with someone like [the resident I worked with]. It would be helpful if somebody who knew more about him would be around because he's totally unresponsive sometimes." (Volunteer 16, Final Interview)
More time to get to know the resident (minor theme; 2, 2, 2)	"I was glad I was given an opportunity to meet him before my first visit. Starting straight into the Montessori visits meant that we were starting straight into activities, which actually I think was pretty good [in my case]... [But] I know I spent probably two hours total just getting to know [the resident], and ... his wife, and ... his grandson.... Perhaps a bit more time allocated there could be valuable..." (Volunteer 2, Final Interview)
More training in non-verbal communication (minor theme; 3, 2, 2)	"And perhaps instructions on how to communicate that particular activity to a resident who cannot hear, cannot speak, cannot see as well. Continuing to try and find activities that are simultaneously engaging to seniors who have had a full life and just thus like not childish, as they may see it – and yet with simplicity, so that they could be approached." (Volunteer 2, Final Interview)
More training in problem-solving (minor theme; 2, 2, 2)	"The one thing, and this is just an observation that I made, was the one day, and this wasn't necessarily anything related to Montessori, but one thing that could help in that area, is if you see residents having physical interactions like combat almost, with each other – of what would be the best way to help, you know, if there's no staff around. There was one little lady one day that was getting kind of pummelled by three guys. And so how do you... like I just – rescued her, if you will." (Volunteer 15, Final Interview)

**Note.** In parentheses following each code is the number of interview excerpts to which the code was applied, followed by the number of interviews these excerpts occurred within, and lastly, the number of interviewees who raised the topic. This provides an indication of theme saturation.

access several activities, but that once they discovered those that best engaged their visiting partners, they wished for a larger array of similar activities. The

interaction between volunteer and resident interests was also important to volunteers' activity preferences. For example, some volunteers and residents were not

**Table 4: Delivery quality**

Recommendation	Representative Quotation(s)
Use of Montessori activities (88, 23, 8)	"He really likes looking at the maps and like showing me where things are on the map and he, when he used to navigate like in, and fly." (Volunteer 10, First Interview)
Modeling the activity first (30, 18, 7)	"I placed [the towels] flat on her lap and I showed her how I had mine on my lap and then I would fold mine. And she had a different technique but she did it. She did it her way. Not my way. And that's fine." (Volunteer 8, First Interview)
Accommodating disability (23, 11, 7)	"I was also very careful because, because this is kind of related to what he would do for his career.... I didn't want to get him to the point where he felt frustrated that he could no longer do something he used to be really skilled at. So I didn't want to push it. So I think by spreading it out [across visits], he doesn't really realize that it took him a long time to nail this thing together, but he was very happy about it at the end." (Volunteer 10, Final Interview)
Making every visit a success (38, 19, 8)	"I was mentally prepared that they are suffering from dementia so they, even if they are showing little of their participation that, that makes me satisfied.... with the apples [activity], she was just putting it in her hand and feeling and I was sorting in front of her and she was just picking and putting it wherever but, but she was involved in the activity." (Volunteer 6, Final Interview)
Supervising the activity (68, 21, 8)	"And like the coffee beans activity... it is mentioned in the profile that she usually enjoys like sensory experience. But, but it turned out to be like opposite. Because putting coffee beans into her mouth, that was like scary and dangerous." (Volunteer 6, First Interview)

**Note.** In parentheses following each code is the number of interview excerpts to which the code was applied, followed by the number of interviews these excerpts occurred within, and lastly, the number of interviewees who raised the topic. This provides an indication of theme saturation.

comfortable using high-sensory activities (e.g., colourful or textured manipulatives), perhaps perceiving these as too childish, whereas other volunteers and residents responded positively to these.

Only two volunteers expressed a need for more support with resident engagement, but did so consistently across three interviews. These volunteers were working with residents with late-stage dementia, for whom direct engagement in the activities was limited, despite passive interest or occasional attempts to participate.

### Delivery Quality

A number of key recommendations were communicated to volunteers during training, and interview data were analyzed for evidence that volunteers were following these recommendations, which included: *use of Montessori activities* (e.g., as opposed to strictly conversational visits), *modeling the activity first*, *accommodating disability*, *making every visit a success*, and *supervising the activity* closely. See Table 4 for representative quotations.

#### *Use of Montessori activities*

All interviewees described the use of one or more pre-prepared MBI activities during volunteer visits; nevertheless, several interviews also contained descriptions of portions of visits that did not include the use of MBI activities. Further analysis suggested that because some volunteers were working with residents who had good conversational skills, they had incorporated conversation into their visits; for example, one volunteer led an activity first, and stayed to talk afterward. Nevertheless,

some volunteers included conversation in their visits even when the resident showed little evidence of understanding.

Overall, interview content suggested that all volunteers used prepared MBI activities for some visits. However, there was evidence that three volunteers reduced their use of prepared activities over time, preferring shared participation in music or walks outside. These volunteers were all working with residents with late-stage dementia, who responded best to sensorial activities. Another volunteer ultimately chose conversational visits over an MBI approach; in this case, the resident was a former salesman who enjoyed conversation. Although an additional volunteer claimed not to be using prepared activities, further exploration during the interview clarified that he had appropriately modified activities to suit his and the resident's interests.

#### *Modeling the activity first*

Most participants discussed modeling the activity before asking the resident to join in. Interview data suggested that this was an ideal way to engage a resident's interest in an activity, particularly when residents had lower verbal communication ability. Often, the resident decided to join the activity; however, sometimes, the resident's ability to mirror the activity proved to be limited. For example, after one volunteer modeled a practical/sensorial activity that involved transferring coffee beans from one container to another, the resident attempted to eat the coffee beans.

### *Accommodating disability*

Examples provided during the interviews suggested that most volunteers adjusted their approach to visiting after learning about residents' needs, interests, and abilities. Although some of this information was available to volunteers at the outset of the program, volunteers also described relying on direct experience to identify adjustments that facilitated visits with a particular resident (e.g., using a louder voice, offering assistance only after fatigue set in). Some volunteers noted that residents' responses varied from day to day, or in response to fluctuations in cognitive functioning and fatigue. Interview data suggested that volunteers adjusted well to these situations. Some mentioned returning at another time, whereas others gave examples of spontaneously modifying activities or introducing an alternate activity.

### *Making every visit a success*

As volunteers described their use of the Montessori activities, it was clear that they regularly modified activities to ensure that the resident could successfully complete them. For example, one volunteer emphasized stacking dominoes instead of matching patterns. Another volunteer mentioned that it was helpful to keep visits brief in order to ensure that the resident did not fatigue, and therefore disengage. In general, there was good evidence that volunteers adapted activities so that residents felt engaged and efficacious.

### *Supervising the activity*

Evidence that volunteers were closely supervising activities was implicit in volunteers' descriptions of the visits. For example, volunteers described their roles and the residents' roles in the activities in detail, and most offered detailed observations about residents' reactions to a range of activities. Occasionally, volunteers gave examples of having circumvented possible or actual risk because of close supervision. In particular, it

was common for residents with late-stage dementia to put small colourful objects in their mouths, a possibility that had been addressed during volunteer training.

### *Participant Responsiveness*

#### *Residents' responses to visits*

Scores on the Resident Response subscale of the VQQ ranged from 4 to 7 ( $\bar{x}$  = 5.46; SD = 0.88), suggesting that volunteers perceived residents as moderately satisfied with the visits, on average. Volunteers described residents' responses to visits in terms of *acceptance*, *engagement*, and *recognizing the volunteer*. All themes were well saturated. See Table 5 for representative quotations.

Overall, *acceptance* of volunteer visits seemed high. Refusals seldom occurred, and interview data suggested that some residents were immediately accepting of volunteer visits, whereas other residents' acceptance seemed to increase over time. During initial visits, volunteers perceived residents as somewhat hesitant to participate in activities. During later visits, volunteers perceived residents as more engaged and expressive. Some residents began to call the volunteers friends.

The level and quality of *engagement* in the MBI varied from one resident to another, and sometimes varied across visits. Some volunteers described residents engaging in these activities with ease. Others noted that residents preferred to watch with interest, or were engaged one day but not the next, or tired or lost interest after briefly engaging. Volunteers working with residents who had late-stage dementia were more likely to describe inconsistent or low engagement. Overall, residents' responses were described as ranging from passive interest and observation to active participation. As time passed, most volunteers discovered activities that engaged the residents more often than not, but variations in engagement continued to occur.

**Table 5: Resident response to visits**

Nature of Response	Representative Quotation(s)
Acceptance (55, 19, 8)	"It was three times I visited her, and every time I met her the bond became more strong. I remember, during my first visit that week, there was a caretaker who said, 'there is someone to visit you' and she got excited and hugged me that time." (Volunteer 6, Final Interview)
Engagement (112, 23, 8)	"I usually bring the woodworking kit ... the first thing we did was sanding it and I don't think it was quite as exciting for him 'cause he couldn't really see like what we were building. ... We started nailing it together and ... he got better with mobility, especially as it started coming together. He's kind of started getting more proud of what we were doing ..." (Volunteer 10, Final Interview).
Recognizing the volunteer (19, 12, 7)	"I can say he is more familiar with me. On the very first day we were unfamiliar to each other and over the next few days, we were more familiar to each other." (Volunteer 16, First Interview)

**Note.** In parentheses following each code is the number of interview excerpts to which the code was applied, followed by the number of interviews these excerpts occurred within, and lastly, the number of interviewees who raised the topic. This provides an indication of theme saturation.



**Table 6: Volunteer responses to visits**

Nature of Response	Representative Quotation(s)
Comfortable (10, 9, 6)	"I felt that I was in a really good spot coming into it. I didn't feel afraid about trying these activities with people; I hadn't used them yet so I didn't know what would work but I, I wasn't concerned about, about that. Having a basis of knowing which activities certain people would like because they had been tried before, that helped a lot." (Volunteer 2, Final Interview)
Connected (9, 6, 5)	"You know, it's really good to really focus in on somebody. Even if there's others that join in, you're still primarily with one person, right? And you have the opportunity to build a relationship with that resident." (Volunteer 15, Final Interview)
Rewarded (28, 14, 7)	"I'm really, really, really glad and proud that this kind of activity exists ... and that it's able to help these seniors." (Volunteer 2, Final Interview)
Drained (5, 2, 2)	"The times that I'm here are hard. I come here, and after an hour of getting in, getting an activity ready, meeting for thirty minutes, and going, [I am] tired. Like really, really tired. It's not so much dislike as, when I'm really engaging and really helping, it is exhausting." (Volunteer 2, First Interview)
Sad (2, 2, 2)	"It is hard on me when I have to leave him and it kind of looks like he's feeling sad and just kind of going back into his own world again." (Volunteer 15, First Interview)
Discouraged (5, 3, 2)	"I was a little disappointed because I tried to engage her by talking and encouraging her, and I found it was a little bit discouraging for me." (Volunteer 8, Second Interview)

**Note.** In parentheses following each code is the number of interview excerpts to which the code was applied, followed by the number of interviews these excerpts occurred within, and lastly, the number of interviewees who raised the topic. This provides an indication of theme saturation.

Nearly all volunteers spontaneously noted that the resident was *recognizing the volunteer*. Some noted that the resident seemed to "light up" or smile when they arrived, or that the resident now introduced them as a friend. In one case, a resident learned the volunteer's name. Although none of the volunteers spoke directly to the significance of being recognized, these statements tended to be associated with descriptions of residents' increased receptivity and engagement.

#### *Volunteers' responses to visits*

Scores on the Volunteer Response subscale of the VQQ ranged from 5 to 7 ( $\bar{x} = 6.17$ ;  $SD = 0.75$ ), suggesting that volunteers were very satisfied with the visits. Most volunteers described feeling *comfortable*, *connected*, and *rewarded*. A few spoke to experiences such as feeling *drained*, *sad*, or *discouraged* (minor themes). See Table 6 for representative quotations.

Volunteers who expressed that they were *comfortable* related this to their training, noting that they felt prepared for the circumstances that they might encounter, and that even though they were still learning, training gave them an adequate foundation to build on. In addition, one volunteer related her level of comfort to having been in LTC before, and a few volunteers noted that residents' positive responses quickly put them at ease. One female volunteer became uncomfortable when a male resident expressed sexual interest. She was reassigned to work with another resident, and described her overall experience of the program as positive and comfortable.

A sense of feeling *rewarded* by volunteering was apparent in expressions of positive feelings (e.g., compassion) towards the specific residents regularly visited, or gratitude and pride about being involved in volunteer work. Several volunteers mentioned that they looked forward to visits and felt happy after visiting. Some stated that they were making a difference in residents' quality of life; for example, noting the rarity of residents' opportunities to engage with the wider community, or commenting on specific outcomes such as making the resident smile. A few volunteers mentioned their own personal learning or growth as rewarding; for example, learning a new card game, learning about the resident's history, or becoming more flexible.

Volunteers also mentioned feeling *connected* to the residents as they continued to visit. Many described the ways that their relationship was growing, or described the value of this new relationship. For example, some volunteers expressed pleasure that residents with dementia recognized them on return visits, seemed more interested in visiting with them over time, or had shared information about their lives. One volunteer described feeling as though the resident was an uncle, and another described feeling as though the resident was a new friend.

Although volunteer responses were positive overall, some volunteers had mixed feelings. Two volunteers mentioned feeling *discouraged* when a resident was uninterested in a particular activity, or when responses to the visits varied. Both were working with residents who had late-stage dementia, and neither had prior experience in dementia care. The same two volunteers

mentioned that they felt *drained* after visiting. Two other volunteers mentioned feeling *sad* for residents in between visits or when leaving their visits. In both cases, the volunteers empathized with residents' apparent loneliness. Nevertheless, this sadness was not prohibitive, as both felt that their visits made a difference in the moment.

## Discussion

We used the CFIF to assess the intervention fidelity of a volunteer-delivered MBI for people with dementia living in one LTC home. We also explored potential moderators of fidelity, including the quality of volunteers' efforts, program set-up, and the responses of participants. Overall, we found that resident and volunteer adherence to scheduled MBI visits was excellent, and most volunteers consistently employed Montessori activities or made adaptations consistent with Montessori principles. With respect to potential moderators of intervention fidelity, we found that adherence was supported by a highly structured program, by the perceived rewards associated with visiting, and by volunteers' attention to training recommendations. Some limitations were also noted. For example, we found that many volunteers emphasized conversation during their visits, even when LTC residents had significant aphasia, and that volunteers who worked with residents with late stage dementia tended to favour everyday activities over the Montessori activities used in this intervention. In addition, some volunteers, particularly those working with people who had late-stage dementia, did not feel as efficacious as others.

Some concern has previously been expressed about involving volunteers with people who have dementia. For example, Robinson and Clemens (1999) reported that volunteers involved in providing home-based respite care to people with dementia were initially quite apprehensive. In the current study, which primarily involved new volunteers with little to no experience with dementia, volunteers' commitment to the MBI program was excellent. The majority of visits were fulfilled, and there was evidence that most volunteers used the planned activities. These findings align with other emerging evidence that it is realistic to engage volunteers in dementia care (Seitz, Knuff, Prorok, LeClair, & Gill, 2016; Söderhamn et al., 2012; van der Ploeg et al., 2012), and with evidence that volunteers can implement Montessori resources and principles in their visits (Camp, 2010; Schneider & Camp, 2003; van der Ploeg et al., 2014). A potential reason for volunteers' strong commitment to the MBI program, supported by volunteers' comments, is that it was highly structured. According to the CFIF, a well-structured intervention with good program facilitation strategies is likely to

enhance fidelity. A systematic review of volunteers' experiences working with patients who have dementia in acute care settings suggests that a high-structure approach is common (at least in clinical research), and is appreciated by volunteers (Hall, Brooke, Pendlebury, and Jackson, 2019). In LTC, the results of one observational study of casual visits between volunteers and residents suggested that a superimposed structure might also contribute to a more equitable distribution of volunteer resources, avoiding the possibility that only a few residents would benefit from volunteerism (Damianakis, Wagner, Bernstein, & Marziali, 2007).

In some qualitative reports of volunteers' experiences with LTC residents who have dementia, volunteers have mentioned difficult experiences. For example, Söderhamn et al. (2012) report on the experiences of a volunteer who found it difficult to contemplate her volunteer experience without sadness, and ultimately withdrew from the role. Similarly, van der Ploeg et al. (2014) described a sense of futility expressed by a small proportion of volunteers, and Guerra, Demain, Figueiredo, and De Sousa (2012) reported that some volunteers were afraid that their interventions were inadequate. In this study too, although most volunteers reported positive experiences, a few volunteers reported feeling discouraged. These volunteers were all working with residents with late-stage dementia. The similarity of this result with results of prior descriptive studies might suggest that it can be anticipated that a small proportion of new volunteers are unlikely to adapt well to working with people who have dementia. However, in this study, the result was more consistently observed when the resident had late-stage dementia, suggesting that the interaction between volunteer and resident characteristics should also be considered. Volunteers who lack familiarity with the progression of dementia might need more information about what signs indicate a meaningful positive response to a visit in late-stage dementia. Consistent with results from this study, other research on volunteer-led support for people with dementia has suggested that having access to ongoing, scheduled support should be considered to increase volunteer skill and efficacy, or to aid retention (Hall et al., 2019; van der Ploeg et al., 2012). According to the CFIF, the responses of program participants ultimately positively or negatively impact program fidelity; therefore, it is important that these concerns be addressed in future volunteer-led MBIs.

Although several studies of MBIs have been conducted over the last three decades, very few of these have involved volunteers, and no other studies of fidelity are available for comparison. Given the need for stronger non-pharmacological psychosocial interventions in LTC, it is helpful to understand the full potential of volunteer workforce contributions (Seitz et al., 2016). This study

was implemented in close to real-world conditions, with inexperienced volunteers, brief training, consultative support, and a fairly small commitment of time. On the whole, we found that MBI volunteers adhered to the key points communicated during their training, including staying with residents to ensure psychological and physical safety; choosing shared activities over a conversational approach; initiating an activity by modeling it first; being attentive to the needs, interests, and abilities of residents; and adjusting activities to ensure success (cf. Elliot, 2012). Nevertheless, a few limitations in quality were observed.

One observed limitation in volunteers' approach to the MBI was a reliance on conversation during MBI activities. Although this emphasis was sometimes appropriate to resident's roles and abilities, at other times, it was less appropriate. In addition, a gradual movement away from pre-designed MBI activities took place among three resident–volunteer dyads, all including residents with more severe cognitive impairment. In these cases, the MBI was gradually replaced with music, outdoor activities, and conversation. This might suggest an interaction between participant characteristics and program fidelity. The CFIF suggests that fidelity is strongest when program participants (in this case, both residents and volunteers) respond well to the intervention. Volunteers' movement away from the kinds of pre-designed activities recommended in MBI guides (Camp, 2006; Elliot, 2012) might suggest that MBIs, as communicated in these guides, are mismatched to the needs of people with late-stage dementia; alternatively, it might suggest that some volunteers are uncomfortable providing MBIs to people with late-stage dementia. A useful next step would be to study the fidelity of volunteer-led interventions tailored specifically for late stage dementia (e.g., Hunter et al., 2017; Simard & Volicer, 2010).

Volunteer activities thrive in an atmosphere of mutual gain, including rewards such as finding meaning, feeling efficacious, and having a sense of community (Dwyer, Bono, Snyder, Nov, & Berson, 2013; Green-slade & White, 2005; Okun & Michel, 2006). Both questionnaire and interview results from this study suggested that all volunteers were experiencing at least some of these rewards. This is consistent with results from other studies in LTC (Damianakis et al., 2007; Söderhamn et al., 2012; van der Ploeg et al., 2012), and, given that the CFIF suggests that the positive experiences of program participants are among the most important moderators of intervention adherence, volunteer-led psychosocial interventions would seem to have strong potential for success.

A few recommendations are warranted based on study results. First, on the basis of volunteers' comments about

program supports, we recommend that volunteer-led MBIs incorporate the following elements: initial training, a meeting with the resident, information about the resident's abilities and interests, a diverse array of activities, and access to consultative support. Second, we recommend ensuring that resident and volunteer availability is well-matched. Third, we recommend that volunteers working with residents who have late-stage dementia have additional supports, potentially including: information about late-stage dementia, training in non-verbal communication, intervention skill modeling, and co-delivery of the intervention at the outset, as well as periodically scheduled check-ins. These recommendations are generally consistent with those made in prior studies (e.g., Holmberg, 1997; Robinson & Clemons, 1999; van der Ploeg et al., 2014).

### *Research Strengths and Limitations*

The use of the CFIF strengthened this analysis by fostering attention to a full range of intervention fidelity considerations. As a result, we were able to describe some issues that need further attention in clinical research on MBIs, including questions about the design and use of MBIs for people with late-stage dementia, and possible enhancements to training for volunteers supporting residents with late-stage dementia. Nevertheless, the fact that our analytic framework was not chosen a priori precluded a more robust and objective assessment of adherence to the intervention, which might have included directly observing volunteers' use of Montessori activities and principles during visits with residents. In addition, one advantage of our sampling strategy, which relied on the participation of a small group of inexperienced volunteers, was that it allowed us to explore intervention fidelity in real-world conditions. However, studies with larger sample sizes will help to assess the generalizability of our observations, and controlled trials of volunteer-led MBIs will be necessary to examine program outcomes. Finally, we note that the VQQ was created for this study to address an absence of similar alternatives for the LTC sector. Although it had good inter-item consistency and test-retest reliability, it would benefit from additional validity testing.

### **Conclusions**

This study examined fidelity to a Montessori-based intervention among volunteers who were new to dementia care. We found that most volunteers fulfilled their commitments. In addition, most implemented the key principles emphasized in their training, including active supervision, introducing activities by modeling, and modifying activities in response to residents' interests and abilities. Moreover, volunteers suggested that

both they and residents responded positively to the MBI. Although volunteers generally felt well supported by training and other available resources, those working with residents with late-stage dementia requested more support. Overall, this study suggests that with a small investment of time in training and ongoing support, volunteers who are new to dementia care settings can be engaged to provide a quality psychosocial intervention to residents with dementia. Yet, these results also illustrate the importance of ensuring access to support throughout the course of volunteer involvement, and of further examining the suitability of MBIs for residents with late-stage dementia.

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