EVALUATING THE EFFECTS OF MEET ME AT THE MOVIES ON PERSONS WITH DEMENTIA

(working paper)

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ABSTRACT

An estimated 5.3 million Americans are currently living with Alzheimer's disease (AD) as are at least 50 million care partners. Without meaningful pharmaceutical breakthroughs, 13.2 million Americans will be suffering from AD in 2050 (Alzheimer's Association, 2015), along with over 100 million involved care partners. With the increased incidence of dementia, demand has increased for interventions that can be used to treat and reduce challenging behaviors associated with AD. This study involved the evaluation of an art-based intervention for persons with dementia (PWD) called Meet Me at the Movies (MMM). MMM enables PWD to engage in a special program in which they view scenes from classic films and take part in meaningful discussions about the scenes. A quasi-experiment was performed, consisting of pre- and post-intervention measurements of two groups: an Intervention Group (IG), which consisted of 28 PWD who participated in MMM, and a Control Group (CG), which consisted of 13 PWD who did not participate in MMM. Members of each group were all diagnosed with dementia and all lived in Assisted Living Facilities (ALFs), but were otherwise not randomized for equivalence.

Regarding Proximal (Immediate) Outcomes, the MMM intervention produced two desirable effects in IG participants: increased levels of Passive Engagement (Listening/Watching) and decreased levels of Other Engagement (Doing Things Other Than the Target Activity. It also produced one undesirable effect: increased levels of Non-Engagement (sleeping/staring into space). After a closer look at the data and conversations with staff that facilitated the program, it seems that the increase in Non-Engagement was due to low lighting that was used when MMM programming was implemented at residential care facilities. Participants in the CG did not exhibit any Proximal changes. Regarding Distal (Long-Term) Outcomes related to quality of life, agitation, depression, and activity participation, were in a desirable direction for IG participants, while the CG participants generally exhibited trends in a non-desirable direction. Because of the small sample size none of these trends reached statistical significance from baseline to post-treatment. Taken together, the data suggest that MMM is an effective art-based intervention for PWD that deserves further examination.

EXECUTIVE SUMMARY

An estimated 5.3 million Americans are currently living with Alzheimer's disease (AD) as are at least 50 million care partners. Without meaningful pharmaceutical breakthroughs, 13.2 million Americans will be suffering from AD in 2050 (Alzheimer's Association, 2015) along with over 100 million involved care partners. Dementia interferes with a person's ability to function independently by impairing memory, reasoning, judgment, problem solving, and language. A variety of challenging behaviors are also associated with dementia, including aggression, anxiety, agitation, and apathy. Dementia also places physical and mental stress on caregivers. With the increased incidence and prevalence of dementia, demand has increased for education, interventions, and methodologies that can be used to treat and/or circumvent the impairments and challenging behaviors associated with the condition across the entire healthcare field.

An innovative approach to managing challenging behaviors associated with dementia is based on the philosophy of reducing disability through reducing demands of the task environment. The emphasis is on recapturing lost or abandoned abilities, or restructuring activities so that they can be successfully accomplished in spite of deficits. Interventions that accommodate for functional impairments should have a substantial impact on reducing challenging behaviors (Camp, Cohen-Mansfield, & Capezuti, 2002; Gitlin & Corcoran, 1996).

> *The Meet Me at the Movies (MMM) intervention aims to stimulate and engage individuals experiencing memory loss and to promote more meaningful interaction and a deeper understanding between those diagnosed, their care partners, family members, and the communities in which they live.*

The *Meet Me at the Movies* (MMM) intervention, which is the focus of this paper, circumvents the functional impairments of persons with dementia (PWD). MMM focuses on one form of visual art—namely, film. The program has two primary aims: (1) to stimulate and engage individuals experiencing memory loss, enhancing emotional health by reducing symptoms associated with the disease while improving focus of attention, mood, emotional connectedness, memory access, and future orientation and (2) to promote more meaningful interaction and a deeper understanding between those diagnosed, their care partners, family members, and the communities in which they live. All MMM participants have some form of dementia; some have Alzheimer's disease, and others have a different type (e.g., vascular dementia, Lewy body disease, etc.). MMM programming is designed to be interactive and to capitalize on the remaining abilities of PWD. For example, because PWD have a diminished attention span, MMM programming features a series of single clips from various movies, instead of the entire movie. Therefore, participants do not have to follow the thread of the plot or remember characters from one scene to the next. Also, the chosen clips are iconic and/or based on universal themes: love, family, work, world peace, etc. Most participants recognize these scenes, which are embedded in their long-term memories, and so they naturally become engaged in the presentation and group discussion. Participants receive special invitations for the event. MMM has the feeling of a special event, like the premiere of a movie in Hollywood. Participants often dress up. All the sights and sounds of a movie theater are incorporated into the event (e.g., the smell of popcorn, the traditional costumes of movie theater staff, etc.) There are appropriate numbers of care partners available, to ensure that there is sufficient assistance provided when needed. MMM events are painstakingly preplanned, with sufficient accessible bathrooms, clear paths to seats, ushers who take participants to their seats, etc. Each video clip is introduced with a "teaser" by the facilitator, who stands on a stage and uses a microphone and public address system that is sufficiently loud for older adult, asking questions that lead the audience to guess the film and clip within two minutes. The short clip is played in its entirety. Afterwards, a two-minute discussion about the clip takes place, in which participants are encouraged to share their feelings and opinions about the clips. Humor and creativity among the "film critics" (PWD) is encouraged. Care partners are encouraged to simply observe the event, rather than actively participate, because the event is designed specifically for PWD—it is their event, their special day.

The key research questions of this study are the following: *(1) Does MMM programming elicit increased levels of positive engagement/affect and reduced levels of negative engagement/affect in PWD, as compared to standard activities?* We hypothesize that MMM will, indeed produce these effects; and *(2) Does MMM programming produce long term effects on PWD (i.e., increased quality of life and reduced depression and challenging behaviors)?* We hypothesized that MMM will produce long term effects on participants who regularly take part in the program.

To examine these questions, a quasi-experiment was performed (Campbell, Stanley, & Gage, 1963), consisting of pre- and post-intervention measurements of two nonequivalent groups: an Intervention Group (IG), which consisted of 28 PWD who participated in MMM programming, and a Control Group (CG), which consisted of 13 PWD who did not participate in MMM programming (i.e., received standard care during the entire study period). All participants resided at assisted living facilities (ALFs) in the Boston area. While participants in the IG and CG were not equivalent to one another, they were similar in two key respects. First, both IG and CG participants were diagnosed with dementia. Second, they were both living in ALFs.

At Baseline, researchers collected demographics (age, gender, marital status, and ethnicity), type of dementia and psychiatric diagnoses via chart review. Level of cognitive decline was examined through the use of the Cognitive Performance Scale (CPS; Morris, et al., 1994).

Additional measures make up the outcome measures for the study. These include the Menorah Park Engagement Scale (MPES), DEMQOL, Cohen-Mansfield Agitation Inventory-Short Form (CMAI-SF), Neuropsychiatric Inventory-Nursing Home (NPI-NH), Cornell Scale for Depression in Dementia (CSDD), and Activity Participation Scale (APS). The MPES measures the immediate ("in-the-moment") impact of interventions on participants and will be referred to as a "Proximal" measure. The DEMQOL, CMAI, NPI-NH, CSDD, and APS examine longer term effects of interventions on participants and will be referred to as "Distal" measures. All of the above measures were implemented at Baseline and again at Post-Treatment, with the exception of the MPES, which was implemented at Baseline and Treatment.

Does MMM programming elicit increased levels of positive engagement/affect and reduced levels of negative engagement/affect in PWD, as compared to standard activities?

The study sought to examine the impact that MMM programming has on the mental health and social well-being of PWD. In order to have a reasonable chance of impacting PWD, MMM programming was implemented relatively regularly and over an extended period of time—i.e., once per week for an entire four-month period. Once per month, MMM was facilitated as a "Special Event" in which any participants—i.e., people from the general community, with or without dementia—were invited and welcome to attend. Three times per month (i.e., once per week on the other three weeks of a given month), MMM was facilitated as an "In-House" activity within the participants' facility.

The study sought to examine the impact that MMM programming has on the mental health and social well-being of Persons with Dementia.

CG participants did not display any significant changes in any engagement items from baseline to treatment. The lack of significant changes makes sense, since standard programming continued to be provided during the Intervention Period for CG participants. In other words, there was no change in their environment throughout the study period. IG participants displayed two encouraging changes during MMM programming. There was a significant increase ($p<.05$) in Passive Engagement (Listening/Watching the Target Activity) and a significant reduction ($p<.05$) in Other Engagement (Doing Things Other than the Target Activity). Passive

Engagement increased by 32.35%, while Other Engagement dropped by 62.50%. There was one undesirable change in engagement for IG participants. In particular, Non-Engagement (Sleeping/Staring into Space) increased significantly (*p*<.05) from baseline to treatment, with a change of 76.47%. The suspected cause of this is explained below.

There were slight differences between the two different types of MMM programming—In House and Special Event programs. However, the differences were not statistically significant. In particular, there was a slightly greater increase in Passive Engagement for the In-House MMM Programming and a slightly greater decrease in Negative Engagement for Special Event MMM Programming. While still not statistically significant, the most striking difference between the two types of programming appears in Non-Engagement. For the Special Event MMM, there was a very small decrease in Non-Engagement, while there was an increase in Non-Engagement for In-House MMM Programming. This suggests that the overall increase in Non-Engagement for MMM programming was largely driven by the high levels of Non-Engagement displayed by participants in the in-house. After speaking to Foundation team members about this outcome, we hypothesize that the reason Non-Engagement increased in In-House programming was that the program was done in darkness, because there was no way to dim the lights. In the future, lights will be kept on to reduce negative engagement.

Regarding Distal Measures, the small sample size limited statistical significance of changes from baseline to post-treatment were not statistically significant for either group. However, most trends for IG participants were in a desirable direction, whereas most of the trends for CG participants were in an undesirable direction. For instance, for IG participants, there were slight increases in Quality of Life (DEMQOL), Overall Activity Participation (APS), Planned Social Activity Participation (APS-A), and Unplanned Social Activity Participation (APS-B). IG participants also showed slight decreases in Agitation (CMAI) and Depression (CSDD). The only undesirable change was related Neuropsychiatric Symptoms (NPI-NH). On the other hand, most trends for the CG were undesirable. CG participants showed slight decreases in Quality of Life (DEMQOL), Overall Activity Participation (APS), Planned Social Activity Participation (APS-A), and Unplanned Social Activity Participation (APS-B). CG participants also showed a slight increase in Depression (CSDD). While none of these results are significant, the desirable trends for IG participants and undesirable trends for CG participants suggests that the MMM intervention does seem to have some generalizable effects on PWD.

This study shows that, in most regards, MMM programming does result in better-quality engagement, with the exception of Non-Engagement. This was largely driven by the high levels of Non-Engagement that was displayed during In-House Programming. We believe that this was due to the darkness of the room. In our training materials for caregivers, we will mention that dark rooms should be avoided when implementing MMM In house. While there were no statistically significant longer term effects of the MMM Programming seen in the study, most of the changes were in a desirable direction. It is quite likely that, if MMM Programming were to be provided more regularly, and/or if other art-based programming was provided more regularly (4-5 times per week), there would be a longer-term effect on participants.

There are several important limitations to this study. First, the sample size is relatively small and we only worked with PWD in ALFs. There is a need to conduct a larger-scale study of the MMM Program, using PWD from different levels of care—e.g., nursing homes, assisted living facilities, adult day centers, and private homes. By using a larger sample, it would also be possible to stratify by level of dementia to determine the efficacy of the program based on disease condition. Second, the sample was not racially diverse—i.e., all participants were white. It is unclear what results would be seen if the sample were more racially diverse. Third, the MMM Program was only implemented once per week. If the MMM program were implemented more frequently, we might have seen different effects. Fourth, this study only involved film. A study incorporating a more diverse repertoire of art-based programming would likely have a greater impact on PWD. Fifth, due to limited resources available for this study, we depended largely on proxy-based interviews. There is a need to conduct a study that incorporates more direct interview style interviews, since the reliability of the information is more likely to be accurate.

There are very few large-scale studies that have examined the impact of art on PWD. There is a need for additional studies to be conducted in which art-based programming is implemented regularly and over a long period of time. Standardized scales, such as the ones used in this study, should be used, so that we can move beyond the anecdotal stories of success with PWD. Without objective evidence of the impact of these programs, policy and funding decisions will not change.

Informed by the results of a recently-completed SBIR study called Hearthside Book Club™ we believe that additional effects would, in fact, be uncovered should the intervention be implemented more frequently and regularly. In Hearthside Book Club (Skrajner, Gorzelle, & Camp, 2014), participants took part in a specialized reading group four times per week for four weeks. A statistically significant increase was found in overall quality of life based upon the DEMQOL, a reduction in Apathy based on the Neuropsychiatric Inventory-Nursing Home Version, and a reduction in depressive symptoms based on the GDS-SF. To determine if a continuous prescription of MMM programming would lead to long-term effects similar to those seen in Hearthside Book Club would require a future study of MMM programming implemented at least twice per week for two months.

This study shows that, in most regards, MMM programming does result in better-quality engagement, with the exception of Non-Engagement.

INTRODUCTION

An estimated 5.3 million Americans are currently living with Alzheimer's disease (AD) as are at least 50 million care partners. Without meaningful pharmaceutical breakthroughs, 13.2 million Americans will be suffering from AD in 2050 (Alzheimer's Association, 2015) along with over 100 million involved care partners. Dementia interferes with a person's ability to function independently by impairing memory, reasoning, judgment, problem solving, and language. A variety of challenging behaviors are also associated with dementia, including aggression, anxiety, agitation, and apathy. Dementia also places physical and mental stress on caregivers. In fact, when compared to non-caregivers, caregivers of persons with dementia (PWD) are more likely to have increased levels of stress hormones, reduced immune function, slow wound healing, hypertension, and coronary heart disease (Kiecolt-Glaser, Glaser, Gravenstein, Malarkey, & Sheridan, 1996; Kiecolt-Glaser, Marucha, Mercado, Malarkey, & Glaser, 1995; Lutgendorf, Garand, Buckwalter, Reimer, Hong, & Lubaroff, 1999; Shaw, Patterson, Ziegler, Dimsdale, Semple, & Grant, 1999; Von Kanel et al., 2006). In addition, dementia presents a public health concern, largely due to the significant cost of caring for persons with dementia. One study estimates that AD will have a total cost of 226 billion dollars in 2015 (Alzheimer's Association, 2015). With the increased incidence and prevalence of dementia, demand has increased for education, interventions, and methodologies that can be used to treat and/or circumvent the impairments and challenging behaviors associated with the condition across the entire healthcare field.

The Disablement Model

An innovative approach to managing challenging behaviors associated with dementia is based on the philosophy of reducing disability through reducing demands of the task environment. The emphasis is on recapturing lost or abandoned abilities, or restructuring activities so that they can be successfully accomplished in spite of deficits. Interventions that accommodate or compensate for losses in cognitive abilities should have a substantial impact on reducing challenging behaviors (Camp, Cohen-Mansfield, & Capezuti, 2002; Gitlin & Corcoran, 1996). Researchers report that normal older adults' most preserved abilities, on which interventions should be based, involve the use of environmental supports and cues, along with the use of aspects of cognition that are relatively spared by aging, such as automatic skills and implicit memory (Hess & Pullen, 1996; Howard, 1996; Smith & Earles, 1996). This research has been conducted with normal populations, but a similar approach and philosophy can be applied to PWD (Camp, 1999).

> *The Disablement Model is an innovative approach to managing challenging behaviors associated with dementia, based on the philosophy of reducing disability through reducing demands of the task environment.*

A conceptual framework useful in designing interventions for dementia involves a sociomedical model known as the Disablement Process (Verbrugge & Jette, 1994; Jette, 2006; Snyder et al, 2008). In this model, the main pathway leading to disability begins with **Pathology**, such as Alzheimer's disease (AD), which gives rise to specific physiological **Impairments,** such as neurological dysfunction. Impairments lead to **Functional Limitations**, such as the inability to retain new information, difficulty following a sequence of instructions, and trouble expressing oneself verbally. The Functional Limitations experienced by each person (which can vary from individual to individual) lead to specific **Disabilities.** Each Disability is an inability or difficulty in performing specific activities, especially ADLs, such as getting dressed, brushing one's teeth, preparing food, etc. In other words, Functional Limitations refer to *general abilities* that are impaired, while Disability refers to *specific activities*, such as following a recipe, that cannot be accomplished, or can only accomplished with great difficulty, as a result of underlying ability loss. Once the Disablement Process reaches the stage of Disability, it can, in turn, have a powerful impact on overall **Quality of Life**. Since we are dealing with a process, it is possible for Disability, and an accompanying lowered Quality of Life, to have backward feedback loops along the main path of the model. For example, the inability to brush one's teeth (a Disability) might cause a woman to become depressed (Quality of Life outcome). Her feelings of depression, in turn, might further impair her ability to focus (Functional Limitation). Her difficulty in focusing could cause her further difficulty in brushing her teeth and cause her to have trouble with other ADLs, such as getting dressed (feedback to Disability). When she experiences this difficulty, she may stop even trying to do some ADLs altogether, allowing a home health aide to complete them for her. If this situation is not ameliorated, increasing levels of Disability could substantially affect Functional Limitation levels. Disability, therefore, may have an effect in both forward and backward directions. The Disablement Model implies that, if caregivers can implement interventions that enable PWD to *circumvent* their Functional Impairments, and/or if caregivers are trained on how to help circumvent Functional Impairments in a client's daily life, Disability might be reduced. Therefore, the Functional Limitations may never have an opportunity to negatively affect a client's quality of life.

The *Meet Me at the Movies* (MMM) intervention, which is the focus of this paper, is implemented in such a way that it circumvents the Functional Impairments of PWD. See Figure 1 for a photo taken at an MMM event. MMM focuses on one form of visual art--namely, film. The program has two primary aims: (1) to stimulate and engage individuals experiencing memory loss, enhancing emotional health by reducing symptoms associated with the disease while improving focus of attention, mood, emotional connectedness, memory access, and future orientation and (2) to promote more meaningful interaction and a deeper understanding between those diagnosed, their care partners, family members, and the communities in which they live.

The Meet Me at the Movies intervention is implemented in such a way that it circumvents the Functional Impairments of PWD.

Some MMM participants have Alzheimer's disease, and others have different forms of dementia (e.g., vascular dementia, Lewy body disease, etc.). Drawing from the Disablement Model, MMM programming is designed to be interactive and to capitalize

Figure 1. *Meet Me at the Movies* events feature brief 3-4 minute clips of iconic movies. The facilitator (shown center stage in the photo) engages participants utilizing purposeful prompts and questions before and after clips are shown. This approach enables participants with cognitive challenges to not only enjoy the clips, but to participate in the discussion as well.

on the remaining abilities of PWD. For example, because PWD have a diminished attention span, MMM programming features a single clip from a movie, which includes a mini-story, with a beginning, middle, and end, instead of the entire movie. Therefore, participants do not have to follow the thread of the plot or remember characters from one scene to the next. Also, the chosen clips are iconic and/or based on universal themes: love, family, work, world peace, etc. Most participants recognize these scenes, which are embedded in their long-term memories, and so they naturally become engaged in the presentation and group discussion. Participants receive special invitations for the event. MMM has the feeling of a special event, like the premiere of a movie in Hollywood. Participants often dress up. All the sights and sounds of a movie theater are incorporated into the event (e.g., the smell of popcorn, the traditional costumes of movie theater staff, etc.) There are appropriate numbers of care partners available, to ensure that there is sufficient assistance provided when needed. MMM events are painstakingly preplanned, with sufficient accessible bathrooms, clear paths to seats, ushers who take participants to their seats, etc. Each video clip is introduced with a "teaser" by the facilitator, who stands on a stage using a microphone and public address system that is sufficiently loud for older adults with hearing deficits. The clip is played in its entirety. Afterwards, a discussion about the clip takes place, in which participants are encouraged to share their feelings and opinions about the clips. Humor and creativity among the "film critics" (PWD) is encouraged. Care partners are encouraged to simply observe the event, rather than actively participate, because the event is designed specifically for PWD—it is their event, their special day.

Meet Me at the Movies has the feel of a special event, like the premiere of a movie in Hollywood. Participants often dress up. All the sights and sounds of a movie theater are incorporated into the event (the smell of popcorn, the traditional costumes of movie theater staff, etc.)

The key research questions of this study are the following: *(1) Does MMM programming elicit increased levels of positive engagement/affect and reduced levels of negative engagement/affect in PWD, as compared to standard activities?* We hypothesize that MMM will, indeed produce these effects; and *(2) Does MMM programming produce long term effects on PWD (i.e., increased quality of life and reduced depression and challenging behaviors)?* We hypothesize that MMM will produce long term effects on participants who regularly take part in the program.

While several other arts-based interventions and programs for persons with dementia already exist, none of them have the ease of access, familiarity, and impact of film. We will outline several of these art-based interventions for PWD and discuss how they differ from MMM.

The first program to be discussed is *Meet Me at MoMA* (Rosenberg, 2009). This intervention engages PWD in specialized museum tours catering to their specific needs and abilities. The basic approaches used in this well-known program were actually first conceptualized, developed, and operated by the *I'm Still Here Foundation* (as part of its *Artists for Alzheimer's* (*ARTZ) program*). The key approaches Zeisel and his team developed in *Meet Me at MoMA* actually serve as the basis of the MMM program. There are two main differences between *Meet Me at MoMA* and MMM: (1) the form of art that is the focus of each intervention and (2) the venues at which each intervention takes place. Regarding (1), while MMM involves film, *Meet Me at MoMA* focuses on other forms of visual arts. Regarding (2), while MMM takes place at local theaters and/or within residential care facilities, MoMA programs take place at an art museum. While the MoMA program has admittedly grown and flourished, it is hampered by the fact that, in order to be effective, PWD need to be transported to an art museum that has docents with specialized knowledge available to lead the tours. Additionally, there are many fewer art museums in the U.S. than movie theaters; so, accessing art museums in some communities (especially rural areas) can be challenging. Furthermore, while under one quarter (21%) of Americans visit a museum each year, over one-half of all Americans (59%) attend a movie (National Endowment for the Arts, 2015). Film is the most-attended form of art in the country. In summary, while MoMA is a wonderful arts-based program for PWD who have access to art museums, there is a need for additional and more easily-accessible opportunities for art-based engagement for PWD.

Java Music Club is another arts-based program for PWD. In this case, the form of art in which PWD are engaged is music. Creators of the program refer to it as: "The first standardized mutual support program designed to address the critical rates of loneliness and depression across the long-term care spectrum" (Java Music Club, 2013). Participants who regularly take part in the Java Music Club reported decreases in loneliness, development of friendships, and increased coping skills, understanding, and support (Theurer, Wister, Sixsmith, Chaudhury & Lovegreen, 2012). While Java Music Club represents an exceptional music-based intervention for PWD, there remains a need to engage PWD in other forms of art besides music.

TimeSlips is a creative writing / storytelling program that aims to "improve the lives of people with memory loss through creative engagement [and] reach a day when creative engagement is standard practice for all levels of care" (TimeSlips, 2016). *TimeSlips* has been shown to increase creativity, improve quality of life, positively alter behavior, and engage participants in meaningful activity (McFadden & Basting, 2010). However, to be effective, the program relies on organizational adoption of the process and facility-wide training. It is also primarily implemented within residential care facilities, whereas MMM can be implemented either within a residential care facility or out in the community. In addition, this intervention focuses solely on storytelling as its art form.

Scripted-IMPROV™ (www.scriptedimprov.com) is another creative arts intervention developed specifically for PWD. It focuses on drama and involves performing interactive plays with and for PWD. The *Scripted-IMPROV™* Drama Program offers a comprehensive set of training and operational tools equipping care staff to facilitate interactive drama programs in assisted living, day centers, nursing homes, and care homes. Clinical research demonstrates that *Scripted- IMPROV™* leads to increased engagement, reduced depression, and increased quality-of-life for older adults, especially those living with cognitive issues. Again, however, this is a very specific intervention related to drama. There is a need to engage PWD in other forms of art besides drama.

The MMM program is unique in that, while it utilizes a specific medium of art (film), this specific medium is capable of containing other forms of visual art, including storytelling, music, dance, comedy, and more. This allows the medium to cross boundaries, bringing a more holistic feel to the intervention. "Film plays a major role in contemporary society, often providing us with glimpses into other worlds and lives to which ordinarily we would not have access" (Anderson, 2010). Like film itself, the MMM program may play an important role in allowing PWD to glimpse into a world about which they may have forgotten, or to which they are no longer exposed--that of meaningful social interaction and discussion regarding iconic themes relating to hardwired human emotions, wants, and needs--all of which are powerfully captured in classic moments in cinema.

METHODS

This project was conducted between May 2015 and May 2016. All study and recruitment procedures were approved by the Hearthstone Institutional Review Board. Family members responsible for the medical decisions of persons with dementia (PWD) provided consent and PWD provided assent for participation in the study.

Design

A quasi-experiment was performed (Campbell, Stanley, & Gage, 1963), consisting of pre- and post-intervention measurements of two groups: an Intervention Group (IG), which consisted of 28 PWD who participated in MMM programming, and a Control Group (CG), which consisted of 13 PWD who did not participate in MMM programming (i.e., received standard care during the entire study period). All participants resided at assisted living facilities (ALFs) in the Boston area. While participants in the IG and CG were not randomized to be equivalent to one another, they were similar in two key respects. First, both IG and CG participants were diagnosed with dementia. Second, they were both living in ALFs.

Measures

The measures used in the study are shown and described in Table 1.

TABLE 1: DESCRIPTION OF OUTCOME MEASURES

MEASURE	TIME PERIOD	DOMAIN	COLLECTED VIA	RANGE	HIGH SCORE INDICATES
DEMQOL	Baseline/Post-Tx	Quality of Life	Direct Interview	28-112	High Quality of Life
CMAI	Baseline/Post-Tx	Agitation	Proxy Interview	14-70	High Frequency of Agitation
NPI-NH (F x S)	Baseline/Post-Tx	Neuropsychiatric Symptoms	Proxy Interview	0-120	High Frequency/Severity of Symptoms
CSDD	Baseline/Post-Tx	Depression	Proxy Interview	0-38	High Levels of Depression
APS	Baseline/Post-Tx	Overall Activity Participation	Proxy Interview	7-35	High Levels of Activity Participation
APS-a	Baseline/Post-Tx	Planned Social Activities	Proxy Interview	1-5	High Levels of Planned Social Activities
APS-b	Baseline/Post-Tx	Unplanned Social Activities	Proxy Interview	1-5	High Levels of Unplanned Social Activities
CE (MPES)	Baseline/Tx	Constructive Engagement	Observation	0-2	High Levels of Constructive Engagement
PE (MPES)	Baseline/Tx	Passive Engagement	Observation	0-2	High Levels of Passive Engagement
POS (MPES)	Baseline/Tx	Overall Positive Engagement	Observation	0-3	High Levels of Positive Engagement
OE (MPES)	Baseline/Tx	Other Engagement	Observation	0-2	High Levels of Other Engagement
NE (MPES)	Baseline/Tx	Non-Engagement	Observation	0-2	High Levels of Non-Engagement
NEG (MPES)	Baseline/Tx	Overall Negative Engagement	Observation	0-3	High Levels of Negative Engagement
PL (MPES)	Baseline/Tx	Pleasure	Observation	0-2	High Levels of Pleasure

A quasi-experiment was performed… consisting of an Intervention Group who participated in MMM programming, and a Control Group who did not participate in MMM programming.

At Baseline, researchers collected demographics (age, gender, marital status, and ethnicity), type of dementia (dementia not otherwise specified (NOS), Alzheimer's, multiple dementias, or Mild Cognitive Impairment), and psychiatric diagnoses via chart review. Level of cognitive decline was examined through the use of the Cognitive Performance Scale (CPS; Morris, et al., 1994). The CPS, which is based upon select items from the Minimum Data Set of the Resident Assessment Instrument (MDS/RAI; Hawes et al., 1995), rates cognition from a score of zero to six. A score of zero indicates no cognitive impairment. Higher scores indicate increasing levels of cognitive impairment (Morris, et al., 1994). The CPS, which is conducted via proxy—i.e., it does not require a direct interview with participants—has been shown to be a valid and reliable tool for rating cognition of long term care residents (Hartmaier et al., 1995). The CPS has also been shown to correlate closely with scores generated by the Mini-Mental State Examination (MMSE; Folstein, Folstein & McHugh, 1975; Hartmaier et al., 1995). The MMSE is a widely used 30-item measure of cognitive impairment that requires direct interviews with participants. Scores above 23 indicate no cognitive impairment. Scores of 17-23 indicate early stage dementia (mild impairment); scores of 10-16 indicate middle stage dementia (moderate impairment); and scores of 0-9 indicate late stage dementia (severe impairment). In this study, scores on the CPS were used to create an estimated MMSE score, based upon data reported by Hartmaier et al (1995). This, in turn, allowed us to estimate level of dementia for each participant.

Characteristics of participants at Baseline are shown in Table 2. The IG and CG were similar in regards to age, race/ethnicity, gender, CPS total score, MMSE estimated total score, and level of dementia. That is, there were no significant differences between groups revealed when independent samples t-tests and chi-square analyses were conducted on these variables. However, the groups did differ on marital status, type of dementia, and psychiatric disorders. Regarding marital status, there was a higher percentage of widowed IG participants and lower percentage of divorced IG participants, as compared to the CG. Regarding type of

TABLE 2. PARTICIPANT CHARACTERISTICS AT BASELINE

CATEGORY	CONTROL GROUP (CG)	INTERVENTION GROUP (IG)	OVERALL
N	13	28	41
Age (Mean / SD)	81.1 / 8.5	83.1 / 8.0	82.5 / 8.1
Race/Ethnicity			
White (%)	100	100	100
Gender			
Female (%)	92	64	73
Male (%)	8	36	27
Marital Status			
Married (%)	23	27	25
Widowed (%)	46	65	59
Single (%)	0	7	5
Divorced (%)	31	0	10
Type of Dementia			
Dementia NOS (%)	54	79	71
Alzheimer's (%)	8	14	12
Multiple Dementias (%)	38	4	15
MCI (%)	0	4	2
CPS (Mean / SD)	2.3 / 1.3	3.0 / 1.7	2.8 / 1.6
MMSE Estimate (Mean / SD)	17.2 / 5.5	13.1 / 7.6	14.4 / 7.2
Level of Dementia			
Early (%)	69	39	49
Middle (%)	15	11	12
Late (%)	15	50	39
Psychiatric Disorders			
None (%)	31	75	61
Anxiety Disorder (%)	31	11	17
Bi-Polar Disorder (%)	8	0	2
Depression (%)	38	14	22
Psychosis (%)	0	4	2
Agoraphobia (%)	0	4	2
Alcohol Dependency (%)	8	4	5

dementia, there was a higher percentage of IG participants diagnosed with dementia NOS and a lower percentage of IG participants diagnosed with multiple dementias, as compared to the CG. Regarding psychiatric disorders, there was a lower percentage of IG participants diagnosed with psychiatric disorders, as compared to the CG. Though these differences are important to note, we consider the IG and CG samples sufficiently similar to one another for the purposes of this study in examining the effect of the MMM program on PWD.

Additional measures were gathered at both Baseline and post-treatment (or treatment) and make up the outcome measures for the study. These include the Menorah Park Engagement Scale (MPES), DEMQOL, Cohen-Mansfield Agitation Inventory-Short Form (CMAI-SF), Neuropsychiatric Inventory-Nursing Home (NPI-NH), Cornell Scale for Depression in Dementia (CSDD), and Activity Participation Scale (APS). The MPES measures the immediate ("in-the-moment") impact of interventions on participants and will be referred to as a "Proximal" measure. The DEMQOL, CMAI, NPI-NH, CSDD, and APS examine longer term effects of interventions on participants and will be referred to as "Distal" measures.

The MPES is an observational tool that assesses engagement and affect displayed by PWD taking part in activities (Camp, Skrajner, & Gorzelle, 2015). The MPES has been used in many studies examining the impact of non-pharmacological interventions for PWD (Camp & Skrajner, 2004; Skrajner, Gorzelle, & Camp, 2014; Skrajner et al., 2014; Skrajner et al., 2007; Jarrott & Gigliotti, 2010). The MPES divides engagement into four distinct types: Constructive Engagement (CE), Passive Engagement

(PE), Non-Engagement (NE), and Other Engagement (OE). CE is defined as any motor or verbal behavior exhibited in response to the target activity, e.g., turning the pages of a booklet, responding to a question posed by the leader, etc. PE is defined as listening and/or looking in response to the target activity, e.g., listening to a discussion, watching someone pointing to a picture in a book, etc. NE is defined as staring off into space, keeping one's eyes closed, or sleeping during the activity. OE is defined as either self-engagement (engagement with one's own body, clothes, or personal effects, such as biting one's nails or fidgeting with one's shirt while ignoring the activity) or engagement unrelated to the target activity, such as watching a nurse dispense pills to a client in an adjacent room, chatting with a friend while ignoring the activity, etc. Each type of engagement is assessed with a specific item. The MPES also includes items involving Pleasure (clearly observable smiling and/or laughing). MPES items are scored as "0" (never seen), "1" (seen up to half the activity time), or "2" (seen more than half the activity time). Since both CE and PE are desirable / positive behaviors, scores on these two items are added together to create a Positive Engagement (POS) total score, which ranges from 0 to 3. Since both OE and NE are undesirable / negative behaviors, scores on these two items are added together to create a Negative Engagement (NEG) total score, which ranges from 0 to 3. Inter-rater reliability among researcher staff across a number of studies involving the MPES was generally in the 90% - 95% range for all items. Periodic comparisons of ratings by different staff are conducted within studies to insure that rater "drift" does not take place, and when questions arise regarding scoring of a specific item, it is determined by consensus. The MPES was implemented at Baseline and again during the intervention period. During Baseline, researchers observed participants taking part in a variety of standard group activities, such as reading groups, exercise, bingo, arts and crafts, and discussion groups. For IG participants, researchers observed participants taking part in MMM programming during the intervention period. For CG participants, researchers observed participants taking part in standard programming (standard care) during the intervention period.

The MPES is an observational tool that assesses engagement and affect displayed by PWD taking part in activities

The DEMQOL (Smith et al., 2005) is a 28-item scale that assesses quality of life of PWD. Examples of items include: "In the last week, have you felt cheerful?" and "In the last week, have you felt full of energy?" Each item is rated on a score of one to four (i.e., not at all, a little, quite a bit, or a lot). Total scores range from 28-112, with higher scores indicating higher quality of life. The DEMQOL is typically conducted via direct interview with PWD. However, if a person has advanced dementia, a proxy version can be used. The DEMQOL underwent rigorous evaluation in two-stage field testing with 241 people with dementia and 225 caregivers, and demonstrated psychometric properties comparable to the best available dementia-specific measures (Smith et al., 2005). The DEMQOL was implemented at Baseline and again at post-treatment (after the completion of the intervention period).

The CMAI-SF (Cohen-Mansfield, Marx, & Rosenthal, 1989) was developed to assess agitation—i.e., "inappropriate verbal, vocal or motor activity" (Cohen-Mansfield, 2008)—in long-term care residents, including those with dementia. The CMAI-SF consists of 14 items that are posed to a proxy (caregiver). Examples of items includes "during the past two weeks did the resident display cursing or verbal aggression?" and "Did the resident display constant request for attention for help." Each item is rated on a scale of one (behavior never occurs) to five (behavior occurs a few times an hour or continuous for a half an hour or more). Therefore, total scores on the CMAI-SF can range from 14-70, with higher scores indicating higher levels of agitation. The instrument has established internal consistency, reliability and validity (Finkel, Lyons, & Anderson, 1992). It has also been found to have good test-retest reliability (Koss et al., 1997) and inter-rater agreement for each individual behavior averaging .88 to .92 (Cohen-Mansfield, Marx, & Rosenthal, 1989). The CMAI was implemented at Baseline and again at post-treatment.

The NPI-NH (Cummings et al., 1994; Wood et al., 2000) was designed for use with patients with AD and other dementias, and evaluates both the frequency and severity of 10 neuropsychiatric symptoms, which are often referred to as challenging behaviors in PWD. These include: apathy, agitation, irritability, dysphoria, disinhibition, anxiety, hallucinations, delusions, euphoria, and abnormal motor output. The NPI-NH has good internal consistency (Cronbach's alpha = .88), and test-retest reliability (.79 for frequency; .96 for severity), as well as content and concurrent validity (Cummings et al., 1994) and has been used to assess effects of pharmacological treatment (Kaufer, Cummings, & Christine, 1996) and frequency of various behavioral disturbances in AD (Mega et al., 1996). Each behavior is rated as absent or present. In addition, if the behavior is present, its frequency is rated on a scale of one to four (higher scores indicating greater frequency) and its severity are rated on a scale of one to three (with higher numbers indicating greater severity). For each item, Frequency is multiplied by Severity to create an *F x S* score for that item. A total score on the NPI-NH is calculated by adding up all of the *F x S* scores. Therefore, total scores on the NPI-NH (*F x S*) can range from 0-120, with higher scores indicating increased frequency and severity of neuropsychiatric symptoms / challenging behaviors. The NPI-NH was implemented at Baseline and again at post-treatment.

The Cornell Scale for Depression in Dementia (CSDD; Alexopoulos, Abrams, Young, & Shamoian, 1988) is a 19-item instrument that measures depressive symptoms in PWD. It can be administered either to a patient or proxy (caregiver). In this study, we decided to administer the CSDD to proxies. Information is gathered through semi-structured interviews which focus on the prior week's depressive symptoms and signs. Many items can be completed after direct observation of the patient. Each item on the CSDD is rated on a scale of 0-2 (0=absent, 1=mild or intermittent, 2=severe) and individual items are added to determine a total score. Therefore, total scores on the CSDD can range from 0-38, with higher scores indicating increased depressive symptoms. A score greater than 10 is indicative of probable major depression; a score greater than 18 indicates definite depression; a score less than six is associated with an absence of any significant depressive symptomology. The scale's sensitivity, interrater reliability (kw = 0.67), and internal consistency (coefficient alpha: 0.84) are all highly rated. Total scores on the CSDD correlate (0.83) with depressive subtypes of intensity, as classified by the Research Diagnostic Criteria (Spitzer, Endicott, & Williams, 1979). The CSDD was implemented at Baseline and again at post-treatment.

The APS (Lawton et al., 1998) is a six-item measure of the extent to which long term care residents engage in activity participation. This measure, which is implemented through interviews with proxies (caregivers/activity staff), has been used extensively in collaborative studies on the effects of environment on PWD in special care units (Lawton, 1994; Lawton et al., 1998). Examples of items include "how often does the resident take part in planned social activities (games, music, parties, group crafts, etc.?" and "how often does the resident take part in unplanned non-solitary, social activities (games, etc.)?" Each item is scored on a scale of one (never) to five (daily or more often). Therefore, total scores on the APS can range from 6-30, with higher scores indicating increased involvement in activities. Besides analyzing the total score on the APS, we also individually analyze two items, since they are particularly relevant to the impact of the intervention. These include Item A ("how often does the resident take part in planned social activities (games, music, parties, group crafts, etc.?") and Item B ("how often does the resident take part in unplanned non-solitary, social activities (games, etc.)?) The APS provides a wider time frame for examining engagement than is available in 5-minute observation windows of the MPES, which is described below. The APS was implemented at Baseline and again at post-treatment.

Intervention Frequency/Schedule

The study sought to examine the impact that MMM programming has on the mental health and social well-being of PWD. In particular, we were interested in determining whether, and to what extent, MMM programming would increase quality of life (DEMQOL), reduce challenging behaviors (CMAI and NPI-NH), reduce depression (CSDD), increase overall activity participation (APS), increase positive forms of engagement/affect, and/or reduce negative forms of engagement/affect. In order to do this, it was important to implement the MMM intervention regularly—i.e., at least once per week. Research has shown that the frequency with which an intervention is provided seems to have an impact on the extent to which generalizable affects are seen in PWD (Skrajner, Gorzelle, &

Camp, 2014). Prior to the study, MMM programming had been implemented once every 2-3 months at the Coolidge Corner Theater in Brookline, Massachusetts. While MMM was well-received and many people enjoyed attending, the low frequency with which the intervention was offered did not provide a reasonable opportunity of having a generalizable effect on PWD.

Therefore, in this study, MMM programming was implemented once per week for an entire four-month period. Once per month, MMM was facilitated as a "special event" in which any participants—i.e., people from the general community, with or without dementia—were invited and welcome to attend. Three times per month (i.e., once per week on the other three weeks of a given month), MMM was facilitated as an "in-house" activity within the participants' facility. The Intervention Period Schedule is shown in Table 3.

Table 3. Intervention Period Schedule

Week	Intervention Group (IG)	Control Group (CG)
1	Special Event MMM	Standard Activities
2	In-House MMM	Standard Activities
3	In-House MMM	Standard Activities
4	In-House MMM	Standard Activities
5	Special Event MMM	Standard Activities
6	In-House MMM	Standard Activities
7	In-House MMM	Standard Activities
8	In-House MMM	Standard Activities
9	Special Event MMM	Standard Activities
10	In-House MMM	Standard Activities
11	In-House MMM	Standard Activities
12	In-House MMM	Standard Activities
13	Special Event MMM	Standard Activities
14	In-House MMM	Standard Activities
15	In-House MMM	Standard Activities
16	In-House MMM	Standard Activities

By holding In-House MMM programs three times per month, we were able to facilitate the intervention on a regular basis, while avoiding the practical problems of securing a venue and transporting frail older adults to this venue on a weekly basis. Yet, since we still held a monthly special event, we were still able to bring residents out of their facility and into the community at least once per month. The split between In-House and special event MMM programming also allows us to examine whether there are differences between the engagement produced by special events and in-house style of MMM programming. This is a useful question to explore, since many facilities do not have the means to transport residents to a local theater; so, if adequate results can be produced within a facility, MMM would be a great activity within long term care facilities for PWD across the United States.

RESULTS

Proximal (MPES) outcomes are shown in Table 4. As one might expect, CG participants did not display any significant changes in any engagement items from baseline to treatment, nor did any items change by more than 25% from baseline to treatment. The lack of significant changes makes sense, since standard programming continued to be provided during the Intervention Period for CG participants. IG participants, who took part in MMM programming during the Intervention Period, displayed two encouraging changes during MMM programming. There was a significant increase ($p<.05$) in Passive Engagement (Listening/Watching the Target Activity) and a significant reduction ($p<.05$) in Other Engagement (Doing Things Other than the Target Activity). Passive Engagement increased by 32.35%, while Other Engagement dropped by 62.50%. There was one undesirable change in engagement for IG participants. In particular, Non-Engagement (Sleeping/Staring into Space) increased significantly ($p<.05$) from baseline to treatment, with a change of 76.47%.

> *There was a significant increase (p<.05) in Passive Engagement (Listening/Watching the Target Activity) and a significant reduction (p<.05) in Other Engagement (Doing Things Other than the Target Activity).*

As mentioned earlier, MMM programming was implemented in two distinct ways. First, once per month a Special Event version of MMM was implemented, in which anyone (persons with and without dementia) were invited to attend the program; these were relatively large groups, with 40-60 people attending each session. Second, three times per month In-House MMM programs were provided to participants; these were relatively small groups and programs were only open to residents of the ALF. Given the very different nature of these two MMM programs, it is worthwhile to ask whether engagement levels differed between the two different types of MMM programming.

TABLE 4. OUTCOMES FOR PROXIMAL (MPES) DATA: MEANS (STANDARD DEVIATIONS)

ITEM	CONTROL GROUP (CG) $n = 13$				INTERVENTION GROUP (IG) $n = 28$			
	BASELINE	**TX**	***CHANGE***	***CHANGE (%)***	**BASELINE**	**TX**	***CHANGE***	***CHANGE (%)***
CE	1.22 (0.44)	1.30 (0.43)	*+ 0.08*	*+ 7%*	0.91 (0.69)	0.70 (0.35)	*- 0.21*	*- 23%*
PE	0.96 (0.36)	0.91 (0.24)	*- 0.05*	*- 5%*	1.02 (0.65)	1.35 (0.51)	*+ 0.33**	*+ 32%**
POS	*2.19 (0.44)*	*2.21 (0.43)*	*+ 0.02*	*+ 1%*	*1.93 (0.95)*	*2.05 (0.48)*	*+ 0.12*	*+ 6%*
OE	0.21 (0.39)	0.17 (0.15)	*- 0.04*	*- 19%*	0.48 (0.69)	0.18 (0.28)	*- 0.30**	*- 63%**
NE	0.21 (0.39)	0.26 (0.40)	*+ 0.05*	*+ 24%*	0.17 (0.27)	0.30 (0.39)	*+ 0.13**	*+ 76%**
NEG	*0.41 (0.42)*	*0.43 (0.43)*	*+ 0.02*	*+ 5%*	*0.66 (0.78)*	*0.47 (0.46)*	*- 0.19*	*- 29%*
PL	0.45 (0.44)	0.48 (0.35)	*+ 0.03*	*+ 7%*	0.31 (0.28)	0.37 (0.33)	*+ 0.06*	*+ 19%*

* $p < .05$ for paired sample t-test (baseline vs. treatment)

Proximal (MPES) data on these two types of MMM programs are presented in Table 5. There were minor differences between the two MMM programs, though none of the differences were statistically significant. There was a slightly greater increase in Passive Engagement for the In-House MMM Programming and a slightly greater decrease in Negative Engagement for Special Event MMM Programming. While still not statistically significant, the most striking difference between the two types of programming appears in Non-Engagement. For the Special Event MMM, there was a very small decrease in Non-Engagement, while there was an increase in Non-Engagement for In-House MMM Programming. This suggests that the overall increase in Non-Engagement for MMM programming was largely driven by the high levels of Non-Engagement displayed by participants in the In-House programming. After speaking to Foundation team members about this outcome, we hypothesize that the reason Non-Engagement increased in In-House programming was that the program was done in darkness, because there was no way to dim the lights. In the future, lights will be kept on to reduce negative engagement. Distal outcomes are shown in Table 6. Changes from baseline to post-treatment were not statistically

TABLE 5. IN-HOUSE VS. SPECIAL EVENT MMM PROGRAMMING, PROXIMAL (MPES) DATA: MEANS (STANDARD DEVIATIONS)
INTERVENTION GROUP (IG)
$n = 28$

ITEM	BASELINE	SPECIAL EVENT	*CHANGE*	*CHANGE (%)*	IN-HOUSE	*CHANGE*	*CHANGE (%)*
CE	0.91 (0.69)	0.83 (0.55)	*- 0.08*	*- 9%*	0.60 (0.36)	*- 0.31*	*- 34%**
PE	1.02 (0.65)	1.27 (0.58)	*+ 0.25*	*+ 25%*	1.46 (0.59)	*+ 0.44*	*+ 43%***
POS	*1.93 (0.95)*	*2.10 (0.41)*	*+ 0.17*	*+ 9%*	*2.06 (0.75)*	*+0.13*	*+ 7%*
OE	0.48 (0.69)	0.21 (0.42)	*- 0.27*	*- 56%*	0.19 (0.23)	*- 0.290*	*- 60%**
NE	0.17 (0.27)	0.15 (0.25)	- 0.02	- 12%	0.37 (0.63)	+ 0.20	+ 108%*
NEG	*0.66 (0.78)*	*0.36 (0.47)*	*- 0.30*	*- 45%*	*0.56 (0.63)*	*- 0.10*	*- 15%*
PL	0.31 (0.28)	0.33 (0.36)	*+ 0.02*	*+ 6%*	0.43 (0.38)	*+ 0.12*	*+ 39%*

* $p < .05$ for paired sample t-test, baseline vs. treatment
** $p < .01$ for paired sample t-test, baseline vs. treatment
Note: Special Event vs. In-House Differences Were Not Significant

TABLE 6. OUTCOMES FOR DISTAL MEASURES: MEANS (STANDARD DEVIATIONS)

	CONTROL GROUP (CG) *n* = 13			INTERVENTION GROUP (IG) *n* = 28		
MEASURE	**BASELINE**	**POST-TX**	***CHANGE***	**BASELINE**	**POST-TX**	***CHANGE***
DEMQOL	100.07 (11.32)	98.25 (12.49)	- 1.82	97.15 (10.25)	97.72 (9.60)	+ 0.57
CMAI	18.69 (5.06)	17.77 (2.92)	- 0.92	26.85 (11.91)	23.80 (10.19)	- 3.05
NPI-NH	9.02 (11.01)	6.36 (5.75)	- 2.66	3.00 (3.00)	3.63 (2.48)	+ 0.63
CSDD	3.13 (3.59)	3.66 (1.92)	+ 0.53	5.89 (6.04)	4.99 (4.43)	- 0.90
APS	25.40 (4.75)	23.88 (3.48)	- 1.52	23.49 (4.96)	24.08 (4.82)	+ 0.59
APS-A	4.85 (0.38)	4.69 (0.86)	- 0.16	4.56 (0.96)	4.64 (0.86)	+ 0.08
APS-B	2.62 (1.90)	2.54 (1.33)	- 0.08	2.88 (1.62)	3.08 (1.82)	+ 0.20

Note: None of the Changes Were Significant from Baseline to Post-Treatment

significant for either group. However, most trends for IG participants were in a desirable direction, whereas most of the trends for CG participants were in an undesirable direction. For instance, for IG participants, there were slight increases in Quality of Life (DEMQOL), Overall Activity Participation (APS), Planned Social Activity Participation (APS-A), and Unplanned Social Activity Participation (APS-B). IG participants also showed slight decreases in Agitation (CMAI) and Depression (CSDD). The only undesirable, though minor, change was related Neuropsychiatric Symptoms (NPI-NH). On the other hand, most trends for the CG were undesirable. CG participants showed slight decreases in Quality of Life (DEMQOL), Overall Activity Participation (APS), Planned Social Activity Participation (APS-A), and Unplanned Social Activity Participation (APS-B). CG participants also showed a slight increase in Depression (CSDD). While none of these results are significant, the desirable trends for IG participants and undesirable trends for CG participants suggests that the MMM intervention does seem to have some generalizable effects on PWD. We hypothesize that over the course of a longer study where the treatment intervention was used between 2-3 times per week the IG participants would see statistically significant changes in some of the distal outcomes.

CONCLUSION

There were two key research questions posed in this study: (1) Does MMM programming elicit increased levels of positive engagement/affect and reduced levels of negative engagement/affect in PWD, as compared to standard activities? and (2) Does MMM programming produce long term effects on PWD (i.e., increased quality of life and reduced depression and challenging behaviors)? Regarding (1), we found that, in most regards, MMM programming does result in better-quality engagement, with the exception of Non-Engagement. As discussed earlier, this was largely driven by the high levels of Non-Engagement that was displayed during In-House Programming. Additionally, we believe that these higher levels of non-engagement were at least partially accounted for due to the darkened theater/viewing space. While we strove to make the program as similar to a true theater experience as possible during the study, in our training materials for caregivers, we now mention that dark rooms should be avoided when implementing MMM In house. Regarding Question (2), while there were no statistically significant longer term effects of the MMM Programming seen in the study, most of the changes were in a desirable direction. It is quite likely that, if MMM Programming were to be provided more regularly, and/or if other art-based programming was provided more regularly (4-5 times per week), there would be a longer-term effect on participants.

Limitations

There are several important limitations to this study. First, the sample size is relatively small and we only worked with PWD in ALFs. There is a need to conduct a larger-scale study of the MMM Program, using PWD from different levels of care—e.g., nursing homes, assisted living facilities, adult day centers, and private homes. By using a larger sample it would also be possible to stratify the sample by level of dementia to determine the efficacy of the program based on disease condition. Second, even though many attendees to the special event programs were minorities (including some who were of lower socio-economic status (SES)), due to the fact that research participants or their legally authorized representatives self-selected to be in the study, the sample was not racially diverse—i.e., all participants were white. It is unclear what results would be seen if the sample were more racially diverse. Third, the MMM Program was only implemented once per week. If the MMM program were implemented more frequently, we might have seen different, and longer-term effects. Fourth, this study only involved film. A study incorporating a more diverse repertoire of art-based programming, including hands-on programming, would likely have a greater impact on PWD. Fifth, due to limited resources available for this study, we depended largely on proxy-based interviews. There is a need to conduct a follow-up study that incorporates more direct interview-style interviews, since the reliability of the information is more likely to be accurate.

Directions for Future Research

There are very few large-scale studies that have examined the impact of art on PWD. There is a need for additional studies to be conducted in which art-based programming is implemented regularly and over a long period of time. Standardized scales, such as the ones used in this study, should be used, so that hard data can be collected rather than relying on anecdotal stories of success with PWD. This is vitally important since, without objective evidence of the impact of these programs, policy and funding decisions will not change.

Informed by the results of a recently-completed, National Institute on Aging-funded, Small Business Innovation Research (SBIR) study called Hearthside Book Club™ we believe that additional effects would, in fact, be uncovered should the intervention be implemented more frequently and regularly. In Hearthside Book Club (Skrajner, Gorzelle, & Camp, 2014), participants took part in a specialized reading group four times per week for four weeks. A statistically significant increase was found in overall quality of life based upon the DEMQOL, a reduction in Apathy based on the Neuropsychiatric Inventory-Nursing Home Version, and a reduction in depressive symptoms based on the GDS-SF. To determine if a continuous prescription of MMM programming would lead to long-term effects similar to those seen in Hearthside Book Club would require a future study of MMM programming implemented at least twice per week for two months.

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