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## Guys and Dolls: Two Case Reports of Spontaneous Interactions with Dolls in Male Veterans with Dementia

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### Abstract

Prior studies have described positive behavioral, emotional and social responses to dolls in persons with dementia, but most have examined formal doll therapy in institutional settings and primarily included women. This study describes two cases of spontaneous doll interactions in male veterans who were participating in a research study of a gentle group movement program at an adult day center. A doll was present at the study site, and two participants chose to interact with it. Researchers analyzed class videos and thematically coded behavioral, emotional and social responses to the doll. Mr. B was a 90-year-old World War II-era veteran with moderate Alzheimer's disease. Behavioral responses (n=83) toward the doll included gazing, holding and caressing. Emotional responses (n=46) included chuckles, smiles, and laughter. Social responses (n=59) involved conversations about the doll in which his ability to communicate verbally was markedly improved. Mr. C was a 68-year-old Vietnam veteran with mild Lewy body dementia. He also exhibited frequent behavioral (n=10), social (n=11) and emotional (n=8) responses toward the

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Disclosure Statement

Dr. Barnes and Dr. Mehling are co-inventors of the PLIÉ program, and the University of California and the Department of Veterans Affairs jointly own the rights to PLIÉ. They may benefit financially if the program is commercialized.

doll. In addition, he reported having an intense, cathartic dream about the doll, crying “it brings me back to holding my son or my daughter.” These case studies add to the literature supporting the benefits of doll use by persons with dementia by describing the effects of spontaneous doll use in two male veterans. Results suggest that having dolls available and providing a non-judgmental environment where doll use is encouraged and supported may have profound beneficial effects to diverse populations.

## Keywords

Dementia; Alzheimer’s Disease; Doll therapy; veterans

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## Introduction

Persons with dementia often experience emotional, behavioral and social challenges that can result in reduced quality of life and caregiver distress (Alzheimer’s Association, 2019). Challenges may include confusion, impaired communication, irritability, withdrawal, decreased movements, and impaired motivation, among others. As a result, researchers and caregivers are seeking new ways to enhance motivation, reduce negative emotions, and promote ongoing social connectedness, such as use of baby- or child-like dolls (Alander et al., 2015; Balzotti et al., 2019; Cantarella et al., 2017; James et al., 2006; Mackenzie, et al., 2006; Ng et al., 2016; Cohen-Mansfield et al., 2010; Ellingford et al., 2007; Pezzati et al., 2014).

To date, research has generally focused on the use of dolls as an adjunctive therapy for persons with dementia (PWD) receiving care in residential communities. Doll therapy is defined as a healthcare provider’s intentional provision of a doll to a PWD, with doll use facilitated as a tool to reduce distress or promote health in the patient (Godfrey, 1994). Attachment theory (Bowlby, 1969) facilitated the development of doll therapies, based on the theorists’ assumptions that the seeking behaviors sometimes exhibited by PWD are efforts to find security during times of distress and confusion. While researchers have now considered doll therapy from viewpoints such as reminiscence (Ellingford et al., 2007) and narrative (Mitchell, 2016) theories, Miesen (1993) originally applied the concept of children’s parental fixation and seeking behaviors to behaviors observed in Alzheimer’s disease. Miesen’s application was later supported by research that observed PWD using various objects that could be considered transitional objects during times of emotional distress (Stephens et al., 2012). The efficacy of doll therapy in reduction of specific dementia-related signs and symptoms, including negative emotional experiences such as anger, anxiety, depression, or paranoia has been assessed through qualitative, quantitative, and combined research methods (Balzotti et al., 2019; Fraser & James, 2008; Ellingford et al., 2007; Pezzati et al., 2014); behavioral concerns such as wandering or aggression (Alander et al., 2015; Bisani & Angus, 2012); and social isolation (Cantarella et al., 2017; Mackenzie et al., 2006). Researchers also have examined the effects of doll therapy on positive emotions, self-care behaviors such as food-intake, and interpersonal responses (Braden & Gaspar, 2015; James et al., 2006; Shin, 2015).

Research supports doll therapy as a potential tool to alleviate negative *emotional experiences* in PWD. Studies have identified a range of emotions such as distress, frustration, sadness (Bisani et al., 2012), anxiety (Braden & Gaspar, 2015), agitation (James et al., 2006), and panic attacks (Fraser & James, 2008) as difficult experiences for someone living with dementia. Literature indicates doll use by PWD may decrease dysphoric emotions (Alander et al., 2015; Cantarella et al., 2017; Shin, 2015) and increase positive emotions (Braden & Gaspar, 2015; James et al., 2006; Ellingford et al., 2007; Shin, 2015). Research where doll therapy did not show clinically significant decrease in negative emotions still noted an increase in positive emotions (Moyle et al., 2019).

Research also has shown doll therapy to likely be effective in addressing *challenging behaviors* with potentially negative consequences for health, safety, and/or well-being in PWD. Examples of challenging behaviors include wandering and/or getting lost (Bisani & Angus, 2012; Braden & Gaspar, 2015) and engaging in repetitive activities or speech (Cantarella et al., 2018). PWD may demonstrate aggressive speech or behavior (Braden & Gaspar, 2015; Cantarella et al., 2018), sedentism (Mitchell & O'Donnell, 2013) or refusing food and/or liquid (Higgins, 2010). Doll therapy literature indicates that doll use results in decreased negative behaviors (Shin, 2015) and increased positive behaviors (Cohen-Mansfield et al., 2010).

*Social Isolation* is a concern when PWD withdraw (Ellingford et al., 2007), refuse or resist care or assistance (Bisani & Angus, 2012; Higgins, 2010), do not initiate interaction (Cantarella et al., 2018), and lack verbal or physical communication with others overall (Mitchell & O'Donnell, 2013). PWD may isolate themselves as a means of preventing undesirable emotional experiences or may experience social isolation after engaging in the aforementioned behaviors. Doll therapy studies have indicated potential increase in social engagement by PWD as a result of doll use (Cohen-Mansfield et al., 2010).

While most studies have reported findings supporting the use of dolls as adjunctive therapy for PWD, some researchers and caregivers have voiced concerns. Some participants with dementia have become possessive of the doll, tried to feed the doll, or become agitated when they were unable to find the doll (Mackenzie et al., 2006). Additionally, some caregivers described doll use as “demeaning” in a post-study questionnaire, as they found the doll use to be infantilizing or patronizing (Moyle et al., 2019). Researchers in several studies (Alander et al., 2015; Mitchell & Templeton, 2014) raised this same ethical concern, as well as noting the potential risk that PWD would engage in caretaking of the doll at the expense of their own activities of daily living (Mackenzie et al., 2006).

Most prior studies of dolls in PWD have examined the effects of formal doll therapy and have included primarily women. The present study addresses this gap by describing the effects of spontaneous doll interactions in two male veterans with dementia who were participating in a research study of a gentle group movement program called Preventing Loss of Independence through Exercise (PLIÉ) ([ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT02350127) Identifier: [NCT02350127](https://clinicaltrials.gov/ct2/show/study/NCT02350127)). PLIÉ involves exercises that promote body awareness and accomplishment of personally identified, progressive physical goals in an environment offering positive emotional expression and social support (Barnes, Mehling, Wu, Beistianos, Yaffe, Skultety

& Chesney, 2015). The PLIÉ study is funded by the Department of Veterans Affairs, and veterans are prioritized for enrollment. Study sites are adult day centers in the San Francisco Bay Area. At each study site, gender-inclusive participants are randomly assigned to an immediate start or waitlist control group. During their assigned period, study participants are offered PLIÉ classes for 1 hour, three days per week for 18 weeks. The PLIÉ team has several trained instructors, and each class generally includes one instructor often accompanied by interns, site staff, or research team members. The instructor writes brief notes after each class, and a random sample of classes are video-recorded for quality control purposes. In addition, the intervention team meets weekly with investigators to discuss issues that arise during class and best teaching practices. While the use of a doll is not part of the PLIÉ intervention, there was a lifelike doll in a room used at one study site. One of two class participants often chose to interact with the doll during class, and the instructor sometimes involved the doll in demonstrations of movements. The instructor discussed her observations of the doll use during weekly team meetings, and the research team encouraged the instructor to document participants' interactions with the doll as part of her class notes. When the waitlist group began classes, the same instructor observed another participant's interest in the doll and asked if they would like to hold it. The instructor again documented the participant's responses to the doll. In both cases, many of the participants' interactions were captured on video. The research team was interested in whether self-selected, unstructured doll use by male, veteran PWDs resulted in responses similar to those found in structured doll therapy studies primarily consisting of female, civilian PWD.

## Methodology

### Setting.

This study analyzed qualitative data and video footage collected as part of a larger clinical trial of the PLIÉ program (Barnes et al., 2015). The study took place in meeting rooms of a California licensed Adult Day Health Care center in the San Francisco Bay Area.

### Subjects.

Participants met general inclusion criteria for the PLIÉ study: Persons with mild-to-moderate dementia, able to provide assent, having a life expectancy of more than one year and without current major psychiatric diagnosis such as schizophrenia. Presence of mild-to-moderate memory loss or dementia was based on consensus scoring of Clinical Dementia Rating (CDR) Scale (Morris, 1993) conducted by trained research assistants. Both participants were male veterans living in the San Francisco Bay Area. The exercise instructor identified both subjects, referred to as Mr. B and Mr. C hereafter, based on their spontaneous interactions with the doll during the movement groups. For other participants in the PLIÉ program, the doll was present in the room during the classes, but they did not express interest in interacting with it.

### Informed consent.

All study procedures were approved by the Institutional Review Board at the University of California, San Francisco (14-14786) and the Committee on Human Research at the San

Francisco VA. Written, informed consent was obtained from all study participants or their legally authorized representatives. Those who did not have capacity to consent were asked for assent. Participants were informed some classes would be video-recorded for quality control purposes and they could choose to allow videos to be used privately for education and fidelity of research only, or to be viewed both privately and publicly as a part of the study's website or publishing. Mr. B and another participant who appears briefly in video clips did not have capacity to consent for themselves, and consent forms were signed by their legally authorized representatives. Mr. C had capacity and signed forms for himself. All participants agreed to public video release.

### **Design.**

The research team used a post-hoc observational case study design. Observational case study research can be used to synthesize and analyze complex phenomena found in a single or small case study format (Yin, 2017; Morgan et al., 2016).

### **Sources of Material.**

The primary sources of data for this study were class notes written by an exercise instructor after each class and class video recordings. Some additional information gathered from participants and caregivers also is included primarily for descriptive purposes (e.g., demographics, psychosocial history, medical history, dementia diagnosis and severity).

### **Qualitative Analysis.**

One research team member (SM) reviewed the instructor's class notes to identify which exercise sessions indicated participants had interacted with the doll. Next, she reviewed the full 1-hour class videos for all eight classes in which the doll was involved. Two participants had numerous interactions with the doll. A third participant interacted with the doll only when prompted by others, and a fourth never expressed or indicated interest in the doll. The research team member watched full video content in order to ensure all interactions between participants and dolls were identified. Mr. B's interactions with the doll were captured in six separate classes. Mr. C interacted with the doll during two classes.

Using data gathered from literature regarding responses to doll therapy, the research team developed and defined categories of responses to doll therapy in PWD including emotional, behavioral, and social responses. *Emotional Responses (ER)* included visually or auditorily evident displays of affect. *Behavioral Responses (BR)* were visually or auditorily evident behaviors demonstrating relaxation, caregiving, affection and pleasure. BR may include such behaviors as kissing, patting, reaching toward, extended attenuated gazing, and verbal statements or sounds not directed toward others. Research team members distinguished BR from affect-based behaviors such as smiling and laughing as goal-oriented responses to stimuli, rather than spontaneous reactions that may occur without intent to relate or deepen connection. Lastly, *Social Responses (SR)* were defined as efforts initiated and/or sustained by the participant to engage interpersonally with another person socially. SR might be observed as the participant speaking to another person, trying to get a person's attention, direct eye contact to engage someone, or other person-to-person social responses. Although these behaviors were observed in videos during times of the exercise class when the doll

was not in use, researchers only coded BR, SR, and ER when the doll was referenced, held, or otherwise in active use by participants or exercise instructor or intern. An analysis comparing ER, BR and SR in classes with and without the doll present was not suitable for this study due to extraneous factors present in exercise classes where the doll was absent.

To record observational notes and transcribe participants' relevant verbal statements when interacting with the doll, researchers created a video log using Microsoft Excel for documentation. One member of the research team (SM) transcribed participants' statements verbatim along with observable affect and behavior. Each instance of doll use was recorded and timestamped for each of the 8 videos where the doll use was observed. The research team member (SM) reviewed each video 3 times to confirm accuracy of quoted speech, context of the coded event, subtle physical responses, and timestamp of each coded event. Finally, SM coded each timestamped entry for the presence of ER, BR or SR by entering 1. For example, ER and SR would both be coded in the log if a participant smiled while holding the doll and then spoke to another group member about the doll. A second researcher (FMN) reviewed the coded video logs and transcriptions, and discrepancies in coding and interpretation were discussed and resolved with the larger research team. Research team members also wrote a brief description of the coded episodes of doll use for ease of identification and interpretation of each event by all research team members.

## Results

### Case 1- Mr. B.

The first interaction with the doll was described by the instructor in her notes from that day:

“The fascinating thing that happened in this class is that Mr. B. made a connection with a baby doll that was in the room. I was setting up the curtain when I heard him talking to the doll in full sentences. He was fully engaged and continued to be for the whole of the class. When I got stuck on giving him directions I showed him with the doll and he followed better than he usually does.”

Mr. B was 90 years old, a World War II-era veteran and a widower. He was White, non-Latino, and had completed 16 years of education. Mr. B lived in a residential home with paid caregivers. His daughter lived nearby and served as his legal guardian. His daughter indicated Mr. B had no difficulties with vision or hearing, but struggled with daily living activities such as dressing, attending to chores, hygiene practices and dining. Mr. B had a diagnosis of Alzheimer's disease and was taking memantine and donepezil at the time of the study.

Mr. B was observed to be a warm, kind gentleman and an encouraging group member. He was often affectionate toward class participants and instructor and/or intern. Despite struggles with communication that was often unintelligible, tangential and included nonsensical strings of words, Mr. B retained his sense of humor. He was curious, and usually willing to try new exercises but would also maintain boundaries by declining movements he did not prefer. Mr. B loved music and would readily tap his feet and sometimes invite others to a slow, shuffling dance. He had significant struggles with word-finding and following

verbal instructions, often requiring instructor or intern to both model and physically assist him with body movements.

Mr. B's first contact with the doll occurred two months into the exercise program. On that day, class ended with Mr. B dancing with the doll to "I Left My Heart In San Francisco" while singing the lyrics to the toy. Over the course of six exercise classes, research team members identified a combined 188 emotional, behavioral or social responses of Mr. B related to doll use. Mr. B's most frequent responses were *Behavioral Responses* (n=83), including leaning toward the doll, reaching for the doll, clicking his tongue toward the doll, including the doll in exercise moves, hand-waving to the doll, and even dancing with the doll. Mr. B's behavioral responses often mimicked exercise movements that had been taught during the group, independently initiating activities similar to those coached by PLIÉ exercise instructor or intern to improve functional ability. Mr. B frequently engaged in extended gazing at the doll. These long-lasting looks would often end with, Mr. B kissing or caressing the doll or initiating a conversation about the doll.

Mr. B's verbal communication noticeably improved when he was speaking to the doll. Mr. B would commonly speak to the doll using greetings and statements appropriate for an adult greeting infant, such as "Hi, baby!" or "How ya doin' kid? Are you doing okay?" In a particularly nurturing moment, Mr. B held the doll and said in a sing-song voice "I kinda see ya, and I love ya!" When holding the doll close, he would often pat the doll's back, and click his tongue as he nuzzled or kissed the doll, sometimes adding "there, there..." as if the doll needed to be soothed. In one heartwarming instance, Mr. B sat the doll on his lap facing another participant, pointed at him, and told the doll "This is a good man, right here." He once spoke to the doll about another group member, saying "What, do you want to see your friend over there?" He then chuckled and engaged with the group member socially.

It was also apparent Mr. B knew the doll was not a real child. *Social Responses* (n=59) often included commentary to exercise instructor or other group participants indicating his awareness that the doll was a toy. "Gee, he looks as real as possible," Mr. B commented during the first exercise class including the doll. "They got the hair, they got the mouth. This is really interesting." Later, he added "I can't stop looking at this thing" and "There's no errors or anything on the head there."

The doll's gender changed from day to day in Mr. B's speech, and one day he indicated the doll was "both a boy and a girl." Mr. B readily engaged in ER, SR and BR related to the doll when others were interacting with the doll as well. Several times he made jolly comments to instructor or intern as they held the doll, such as "He's got a good grip" and "He's a real guy." Mr. B would often tell others about what the doll could do or point out the doll's engagement in exercises.

Mr. B's pleasure in the doll was palpable, as his *Emotional Responses* (n=46) included many chuckles, outright laughter, smiles, and verbal statements of pleasure such as "I like him being around" and "This little guy is something else." The doll's smile was a frequent subject, with Mr. B telling the instructor "He's a good kid, smiling all the time," "She's got toothies," and "That smile... He's got it better than anyone!" While Mr. B was a generally



affable man throughout the classes, it was clear the doll evoked strong positive emotions for him, as well as having a soothing effect at times. The doll was only observed to evoke a negative affect twice: during a time period when the doll was precariously balanced on the floor, and when the doll was being dangled in the air by the instructor. Each time, Mr. B reached for the doll, and cradled it quickly to his chest with relief (supplemental material Barnes\_Doll\_Seg 1.wmv). After the camera was turned off at the end of the final PLIÉ group for this cohort, the exercise instructor indicated in her notes that Mr. B closed the group by speaking to the doll, saying [sic] “I love you Little Fellow. You are a great kid. We have done some good work together. I will visit you periodically.”

### Case 2 – Mr. C.

Mr. C was a 69-year-old Vietnam veteran. He was White, non-Latino and reported completing at least 16 years of education. He lived with his wife in the San Francisco Bay Area. Diagnosed with Lewy Body Dementia (DLB) and bipolar disorder, he took donepezil as well as medications for management of mental health symptoms. In addition to these diagnoses, Mr. C had some hearing difficulties and was legally blind, with frontal vision intact but impaired peripheral vision.

Covered with tattoos, Mr. C was observed to be talkative, reporting in one class that he loved to meet new people on the shuttle that brought him to the day center. He generally showed no cognitive signs of dementia outside of memory impairment, and he reported his primary DLB-related struggles were related to pain, posture, and mobility. Mr. C indicated he wanted to participate in the study to help other veterans. Mr. C was inherently curious about the world, according to notes made by the instructor and research assistants. His comments were reflective and his vocabulary rich, drawing the listener in and evoking imagery. This quality remained present when he spoke to the instructor of his experience with the doll.

In Mr. C’s case, the doll was present during 2 video-recorded exercise sessions where Mr. C happened to be the sole participant in the PLIÉ class. The class took place in a smaller room than usual on these dates, and this room contained the doll. In contrast to Mr. B’s case, the doll was only used once by the instructor to demonstrate an anatomy-related concept, and the rest of the doll use was initiated entirely by participant. Research assistants observed several Behavioral Responses (n=10) in Mr. C. despite the doll not being used as a motivational or instructional tool, as was sometimes the case with Mr. B. Mr. C routinely exhibited Social Responses (n=11) such as speaking to the exercise instructor about the doll, and Emotional Responses (n=8) such as smiling while interacting with the doll.

Mr. C brought the instructor’s attention to the doll, which was off-camera in the corner of the room. “I see the baby doll. That thing gets a lot of love by a couple of the women,” he said to the instructor, referencing other day program members (not involved in the research study). The instructor brought the doll to Mr. C and explained the doll was frequently used by male participant(s) in another PLIÉ group. Mr. C took the doll, stated “looks very real” and then gazed at the doll for some time, delicately holding the doll’s head. “You almost feel a connection,” he told the instructor. Looking at the doll, he smiled and then chuckled while caressing the doll’s legs. Speaking to the instructor, he shared, “I guess I can see why they are attracted to it. It has a draw. I can see where if you let yourself go with your inward

feelings and your imagination, this could really give you a lot.” As the instructor encouraged Mr. C’s engagement with the doll, Mr. C went on to share his perception: “It’s got an inner smile and a sense of joy.”

Mr. C later shared with the exercise instructor writing about a powerful dream he’d had about the doll. The dream was so vivid and emotional, he awoke and immediately wrote about it. Mr. C was so impacted by the dream, he continued to mention it when speaking with research team members over a year later. Below is an excerpt from Mr. C’s transcription of the dream:

“I was telling them that I go to this dementia clinic, and I mentioned that I was high functioning. That there was this baby there. Not a real baby; It is a plastic baby. How some of the other patients talk to the baby and nurture it. It nurtures them, and they nurture it. And that whole experience, and that I observed those people. I realize that that is something that actually happens. And that it helps those people ever so much... It hit me that it would probably be a helpful thing for me to do, to spend time holding the doll, to cuddle and nurture it... It was such an incredible experience in the dream. There was this emotion welling up in me during the telling of my experience with the doll that my voice was breaking up. I was practically being drawn to tears and being at a loss of words.”

Later, in a particularly emotional session, Mr. C caressed the doll’s face (supplemental material Barnes\_Doll\_Seg 2.wmv). At first, he lightly sniffled as he gazed at the doll, but then his chest heaved with a sob. With a watery chuckle, he looked to the instructor and said: “Looks like he has hair.” Bringing the doll close to his chest, he sobbed again, and explained: “It brings me back to holding my son or my daughter.” Holding the doll to his shoulder as if it were a child, with a protective hand on the doll’s back, he smiled as he told the instructor a story about a time when his son, as a baby, spit-up while being held the same way. He laughed as he told the story, tears still present in his eyes. Patting the doll’s back and bottom, he wistfully said: “God... They were just so small, and so innocent.” A sad chuckle escaped as he added “...and now it’s like, they barely keep in touch. It’s terrible.”

## Discussion

Earlier research has generally supported the use of dolls as a therapeutic tool, but took place in residential communities and most participants were women. The present study adds to the literature by providing an in-depth look at the unique experiences of two male veterans who chose to interact with a doll while participating in a research study of a gentle group movement program at their adult day center. Despite being different in age, forms of dementia, and levels of functioning, both men had powerful behavioral, social and emotional responses to the doll. The impact of the doll differed dramatically, yet the categorical aspects of emotional, social and behavioral responses were present for each man. While this study focuses on the responses of two participants to the doll, two other movement group participants did not choose to interact with the doll when it was present.

Results of this study support findings from doll intervention studies that showed increased ER, BR and SR in PWD. Findings also indicate that effects of doll use in male veterans

are similar to those found in female civilians. Additionally, the doll was effective in evoking these responses without the structure of formal doll therapy. The doll facilitated social interactions with other group members and the exercise instructor. During times when the doll was not present, only one spontaneous interaction between participants was observed. Mr. B's communication was also clearer when he was using or referencing doll, providing opportunity for meaningful, sustained conversation. Mr. B's improved communication may be linked to the doll facilitating spontaneous reminiscence, which may have been therapeutic for him. Formal reminiscence therapy has been shown to improve communication in PWD immediately and weeks to months afterward (Woods et al., 2018), and dolls may be a tool for casual, informal efforts in this sense. Mr. B was also engaged in exercise at the time, which could have contributed to the studied factors. Responses by both veterans could also be interpreted as responses to the opportunity for creative efforts and use of imagination in the here-and-now, rather than recollection or use of cognition for expression (Phillips et al., 2018; Fritsch et al., 2009).

There were visible, often dramatic, shifts in participants' affect when the doll was present, and ER was evident throughout the time of use. The observed change was summed up by one participant: "I like seeing that," referencing the doll joining the group. ER for both participants during doll use included smiling, laughter, and gentle chuckling or chuffing. The positive affect evoked by the doll was often the catalyst for each participant to share his experience with others, or engage in storytelling while holding the doll. The positive affective change remained for the duration of the exercise session, and was reported by caregivers as continuing even when doll-use discontinued.

While the responses of the veterans in this study were positive, persons offering dolls to PWD must also consider the individual's potential emotional or behavioral response. Veterans with histories of stressful events or moral injuries involving children may experience unwanted emotions or develop aggressive response. Self-selection for doll usage may allow for PWD to choose to engage in, or avoid, these experiences. Doll therapy dictates that dolls be used by the patient under the guidance or observation of a healthcare professional, and the lack of clinical guidelines regulating use of dolls in therapy by PWD is ethically concerning (Mitchell & O'Donnell, 2013; Mitchell & Templeton, 2014). Self-selected doll use may address this concern, as well as the perspective of doll use enhancing the risk of infantilization (Higgins, 2010; Cayton, 2001; Mitchell & Templeton, 2014). While most other studies assigned a doll to each participant, this study included a single doll that was present in the room. Research team members did not observe any issues related to possessiveness, previously noted as a potential concern (Mackenzie et al., 2006). Results were congruent with studies that indicated an awareness that the doll was a toy (Bisani & Angus, 2012). Both Mr. B and Mr. C would refer to the doll as both a doll and a baby almost interchangeably. The life-like characteristics of the doll were pleasing to both participants, and this was also congruent to previous findings (Cohen-Mansfield et al., 2010; Tamura et al., 2001). The fluidity of the doll's perceived gender (Mackenzie, 2007) was present in this study as well, giving the participants the ability to experience the doll in different ways.

Mr. C casually discussed the use of the doll by female day center members and expressed surprise when he learned from the exercise instructor that men had used the doll as well.

Traditional masculine gender role norms are a part of the socialization of many men; these norms are suspected to be far more vigorously maintained within military culture and among veterans. Within cultural norms around masculinity, behaviors such as emotional expression, discussion of feelings and seeking assistance are strongly discouraged (Lorber & Garcia, 2010). Notably, these are the exact responses the doll evoked in each participant. Doll use may enable some male veterans with dementia, and perhaps older men with dementia in general, to experience previously discouraged emotions, with powerful beneficial effects. Caregiver's assumptions of interest in dolls, or other tools for reminiscence, creativity, or coping, based on the sex and/or gender identity of the PWD may limit the opportunities for the individual to connect with others and enhance the quality of their life through positive affective experience.

## Limitations

The post-hoc study design did not allow for researchers to ascertain if the participants had access to the doll outside of the observed instances, which may have influenced their responses. The deeply personal nature of the doll interactions serves as a reminder that the results of this study may not be generalizable to other male veterans with dementia. Though each participant had a different dementia diagnosis, and differing levels of functioning, participant responses to the doll may have been specific to the individual's personal history and dementia symptoms. There was no controlled use of dolls in the study; however, the adaptive nature of the PLIÉ movement classes served to promote flexibility based on participants' needs and allowed for spontaneous creativity within the movement group. At times, the doll was used by the instructor as a tool for modeling movements or motivation for engagement in movements, which may have increased frequency or intensity of responses to the doll at other times. Additionally, though the instructor was consistently engaged with participants at all times, the direct social stimuli provided through the instructor or intern when doll use was selected may have impacted the frequency of the positive effects of the doll use (Cohen-Mansfield et al., 2006). Mr. B generally demonstrated sedentary behaviors and repetitive behaviors, but Mr. C did not present with behavioral concerns commonly associated with dementia prior to this study. This study consisted of observations of two White, non-Latino males with more than 16 years of education, limiting generalizability.

## Applications & Suggestions for Future Research

While work still remains regarding development of guidelines for the clinical use of dolls for PWD, this research supports the potential benefits of a doll being present for self-selected use. Our results support adjunctive use of the doll as a demonstration object, tool for reminiscence or narrative therapy, or instructional aid. This was a post-hoc analysis, and a prospective observational study or comparative analysis could provide additional support for the efficacy of spontaneous doll use to address ER, BR and SR in PWD. The effects of doll use were observed in the moment, and future studies could indicate whether there were lasting impacts of doll use, and the duration of these effects. Further qualitative exploration of the effects of doll use by PWD could provide additional insights into the efficacy of doll use for targeted concerns, as well as potentially unidentified benefits of doll use. The lack of

interest in dolls observed by some study participants is also an area for future exploration. Conversely, the doll use was selected by Mr. C, who may not have previously been chosen for a dementia study based on his fluctuating cognitive abilities and overall higher level of functioning. Future studies may explore interest in doll use by persons with milder forms of cognitive impairment. Caregivers' responses to doll use by PWD is a less explored area, and research related to their support of doll use is indicated. Future studies including participants representing diverse racial, ethnic, gender, sexuality, socio-economic, religious and occupational communities would enhance generalizability and increase understanding of how dolls might be used within different cultures. Additionally, studies in different settings, including in-home use, would enhance understanding of doll use for PWD that do not receive care outside of the home.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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**Impact Statement:**

These case studies expand literature supporting the benefits of doll use by persons with dementia by describing the effects of spontaneous doll use in two male veterans. Results suggest that having dolls available and providing a non-judgmental environment where doll use is encouraged and supported may have profound beneficial effects to diverse populations.