

THE PERCIEVED BENEFITS OF EXPOSURE TO NATURE THROUGH BIRDS

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THESIS

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Abstract

Objectives: The objective of this research was to pilot Feathered Friends, a multi-sensory based bird intervention program and examine perceived benefits of the program among older adults at an assisted living facility. Feathered Friends adapted from Bird tales was a program for engaging people with cognitive impairments through the natural world of birds. The intervention was intended to increase social participation in a learning environment while reaping the emotional benefits of exposure to nature, specifically birds.

Methods: This was an exploratory research project. We conducted individual, in-person interviews with the participants and analyzed data using a thematic analysis to discover perceived benefits by identifying codes and themes. In addition, findings from the interviews were complemented with observation notes.

Findings: Three themes emerged for perceived benefits of the Feathered Friends program from the interviews with the participants: (1) positive memories, (2) meaningfulness of birds, and (3) social stimulation and interaction. Additionally, three themes surfaced from observation notes. These themes complemented the perceived benefits of the program achieved by the participants: (1) positive behavioral change, (2) positive mood, and (3) active participation.

Discussion: Older adults who reside in assisted living facilities benefit from social interaction and programs tailored to meet their needs. Using nature in program interventions has shown to enhanced health and well-being of the participants. The program, Feathered Friends adapted from Bird Tales has potential connect institutionalized older adults, particularly older adults with cognitive impairments to the world of social interaction and nature.

Keywords: Older Adults; Assisted Living; Intervention, Programs; Activity, Social Isolation

INTRODUCTION

According to a 2018 U.S. Census Bureau report, America can no longer be called the Nation of the young. With the aging of the baby boomers, in a few decades, older people are projected to outnumber younger people for the first time in American history (AARP Livable Communities, 2018). In *Caring for America in the Twenty-First Century* (2010), the authors report that in 20 years, one in five Americans will be over the age of 65 or older compared to 12% today (Stone & Barbarotta, 2010). The 85 and over population is projected to more than double from 6.4 million in 2016 to 14.6 million in 2040, especially due to modern healthcare improvements (Administration for Community Living, 2018; Census, 2018). This growth in population is expected to increase the demand for health services and long-term care needs (Stone & Barbarotta, 2010). Older adults are more likely to experience multiple chronic mental and physical illnesses, have lower levels of functional ability and higher rates of dementia and other cognitive related disorders (Stone & Barbarotta, 2010).

Most older adults, roughly 90 percent, want to “age in place” in their homes and communities (AARP Livable Communities, 2018). Aging in place refers to someone who can remain living in their own home as they age rather than move into an extended care facility. However, not every older adult is capable of successfully living independently in their own homes. physical limitations and cognitive decline can require some forms of assisted living (Chapin & Dobbs-Kepper, 2001). According to AARP (2017), assisted-living facilities are the most rapidly growing type of residential care for older adults in America. The growth is only projected to climb in the future. People move into assisted living because they have health and personal care needs, not necessarily due to the fact that they are seeking leisure amenities that are common to retirement housing (Hawes, Phillips, 2007). Residents are said to be in two

categories; one with few physical limitations and memory loss or judgement problems, and the other with chronic health conditions that require assistance with daily activities (Hawes & Phillips, 2007).

Aging in place has been a fundamental component of the philosophy and promise of the assisted living industry nationally (Dobbs, Hayes, Chapin, & Oslund, 2006). The key to an aging in place philosophy is that facilities adjust the service they provide and level of care criteria to meet residents' changing needs. They argue that aging in place can be achieved among older adults with physical and cognitive limitations with some assistance in an assisted-living setting. This individualized level of care is meant to help avoid discharging individuals to a higher level of care, such as a nursing home (Dobbs, Hayes, Chapin, & Oslund, 2006). Assisted living also aims to offer a "rich social environment," where residents can get plenty of interaction that's beneficial to their health and mental well-being (AARP, 2017). That can include social and recreational activities, such as book clubs and trips to movies and concerts, and exercise and wellness programs (AARP, 2017).

Age-related physical health complications and dementia can occur together (Livingston et.al., 2017). In contrast to mild cognitive impairment, the decline in the ability to perform activities of daily living (ADL) and instrumental activities of daily living (IADL) happens at a quicker rate with dementia patients (Livingston, et.al, 2017). Alzheimer's disease is the most common diagnosis of dementia, but there are several other types of dementia with different outcomes on the ability to participate in activities of daily living (Gure, Kabeto, Plassman, Piette, & Langa, 2009). Gure, et.al (2009) found in their study that those patients with vascular dementia were able to perform less ADLs than by those with Alzheimer's related dementia (Gure, Kabeto, Plassman, Piette, & Langa, 2009). It is estimated that nearly 70% of older adults in

assisted living facilities suffer from some form of cognitive impairments, and those with higher levels of dementia often show agitated behaviors at least once a week (Galik, Resnick, Lerner, Hammersla, Gruber-Baldini, 2015). Studies have shown that behavioral symptoms among this population could be lessened by a person-centered care approach, music therapy, sensory stimulation and cognitive-emotional approaches, such as reminiscence therapy; and social contact approaches, such as animal therapy (Galik, Resnick, Lerner, Hammersla, Gruber-Baldini, 2015).

Mental health benefits are gained through nature-based activities, such as bird watching, gardening or walking outside (Kabisch, Van den Bosch & Laforzezza, 2017). Simply being exposed to nature appears to enhance learning and views of nature show an increase in attention capacity and directed attention. Bird song has a therapeutic effect on people by helping them relax and form stimulating conversations and memories (Bird Tales, 2013). Physical or mental activity done in the presence of birds is more effective than doing the activity in other places (Kabisch, N., van den Bosch, M., & Laforzezza, R., 2017). The Bird Tales program, created by Randy Griffin, R.N., M.S., HNC and Ken Elkins, co-author, in association with the National Audubon Society incorporates nature with the intention of creating a sense of belongingness among a group who may not typically interact by finding common ground in the desire to learn more about nature and birds. Initially, the program has two general goals; to allow for interaction with the outdoors (nature) and to provide a vehicle for social interaction among people living with dementia (Bird Tales, 2013). Feathered Friends was developed based on this program with the inclusion of people who are not suffering from dementia but may have other health issues or unmet needs.

Purpose of the Study

The purpose of this research was to pilot Feathered Friends, a multi-sensory based bird intervention program and examine perceived benefits of the program among older adults at an assisted living facility by conducting individual in-person interviews and utilizing observation notes in the field. It was one of the first research projects to examine the impact of this unique program. This study not only present perceived benefits of the program discussed among the participants but summarizes overall implementation process and provides lesson plans for a six weeks intervention period.

LITERATURE REVIEW

Older Adults in an Assisted Living Facility

There is a high risk for older adults residing in care facilities to experience social isolation which is often associated with reduced feelings of overall well-being (Frank, Molyneux, & Parkinson, 2016). Researchers found that social isolation can predict an increase in morbidity and mortality and has been shown to coincide with mental health concerns, including depression (Frank, Molyneux, & Parkinson, 2016). However, group-oriented activities and/or social support programs reduce the occurrence of social isolation in residential settings and greater reductions are observed among programs that implement a theoretical approach to practice (Frank, Molyneux, & Parkinson, 2016).

Social isolation is associated with a reduction in well-being in older adults and the risk of social isolation is higher for those living in residential care facilities (Frank, Molyneux & Parkinson, 2016). Researchers found that social isolation can predict an increase in morbidity and mortality and has been shown to coincide with mental health concerns, including anxiety and depression (Frank, Molyneux, & Parkinson, 2016). Group-oriented education or social support

programs are effective in reducing social isolation, especially when they are based on theoretical framework (Frank, Molyneux, & Parkinson, 2016). Recognizing the growing population of older adults and the number of predicted adults living with dementia, many of the AL facilities are creating and offering special programs to enhance the well-being for these individuals (Census.gov, 2019).

Health Benefits of Nature

Contact with nature can serve as a health promotion strategy with application in early intervention, treatment, and care (Pryor, Townsend, Maller, & Field, 2006). However, it is unclear if these findings are attributed to benefits from increased exposure to nature, greater levels of socialization, or feelings of autonomy (Griffin & Elkins, 2013). Evidence has demonstrated that passive contact with nature, such as viewing or being around nature, leads to a variety of health and well-being benefits (Pryor, Townsend, Maller & Field, 2006). Hendriks, et.al (2016) found several themes related to benefits of being in nature that include feeling free and useful, finding pleasure and relaxation, socialization, and provoking memories. Nature is associated with a range of positive outcomes across experimental and observational research including happiness, subjective well-being, positive social interactions, and a sense of meaning and purpose in life (Bratman, et al., 2019).

Although individuals with better health and cognitive function are often exposed to more social interactions than those who are cognitively challenged or physically limited, assisted living facilities can do more to provide activity groups that include everyone (Park, Zimmerman, Kinslow, Shin, & Roff, 2012). A consistent relationship was found between the amount of social and recreational activities offered and the amount of social interaction between residents (Park, Zimmerman, Kinslow, Shin, & Roff, 2012). An increase in social interaction occurred more

through group activities and has been shown to result in a slowing of functional decline, increased happiness and increased perception of quality of life (Park, Zimmerman, Kinslow, Shin, & Roff, 2012). Although individuals with better health and cognitive function are often exposed to more social interaction than those who are cognitively challenged or physically limited, AL facilities can do more to provide activity groups that include everyone (Park, Zimmerman, Kinslow, Shin, & Roff, 2012).

In literature, group-based activities designed to facilitate social connectedness are found to improve feelings of well-being and quality of life among institutionalized older adults (Jang, Park, Domingues, & Molinari, 2014). Moreover, Russel et al. (2013) argues social connections are stimulated in natural environments and highlights both nature and social connections are associated with improved feelings of general well-being among older adults (Russell, et.al., 2013). Nature-based programs foster social interactions through group-based activities and provide opportunities for residential older adults to experience nature (Griffin & Elkins, 2013).

Another aspect of nature are animals or pets. Pets can provide affection and be companions to a person regardless of their disabilities. Animal-assisted therapy has been shown to improve attitudes, emotional well-being, social health and cognitive function and reduce levels of loneliness and depression in older adults (Nordgren & Engstrom, 2014). Self-perceived quality of life improved in a study involving pet therapy and older adults by Moretti et al. (2011). Researchers found the benefit of pet therapy was received by both those with psychiatric disorders, and those who are mentally intact (Moretti et.al., 2011). Additional studies conducted on cognitively intact elderly residing in an institutional setting have reported positive outcomes with pet therapy, leading to reduced feelings of solitude and isolation (Colombo, Buono, Smania, Raviola, & De Leo, 2006). Improved attitudes, cognitive function, emotional well-being and

social health of older adults are each attributed as benefits of animal assisted therapies (Nordgreen & Engstrom, 2014).

Theory

Continuity is essential to mental health and functioning (Atchley, 1989). Theory of continuity explains that continuity is distinguished by the external preservation of an individual's life circumstances as well as the internal preservation of identity (Atchley, 1989). An individual strives to accomplish the objective of continuity by using strategies tied to their past experiences of themselves and their social world (Atchley, 1989).

Atchley (1989) proposed theory of continuity is a primary adaptive strategy that older adults use to deal with changes associated with aging (Atchley, 1989). Individuals tend to maintain stability in the same roles they have had across the lifespan and tend to maintain continuity of psychological and social patterns in order to preserve their identity and sense of self as they age (Nimrod & Kleiber, 2007). Internal continuity is the continuity of psychological characteristics such as inner and outer identity while external continuity embodies the roles and activities of the social and physical environment (Nimrod & Kleiber, 2007). Activities that are familiar and allow for personal expression are likely to restore perceptions of confidence, control and freedom (Nimrod & Kleiber, 2007). In accordance with the Continuity Theory of Aging, participation in leisure activities at an old age is often a continuation of previous participation and is used to help people relax, play and also engage in social activities (Minhat, Rahmah, & Khadijah, 2013).

The approach of continuity theory is tied with reminiscing through memory processing, where older adults use familiar knowledge, skills and strategies to adapt to the aging process and stabilize themselves (Lin, Dai, Hwang, 2013). Reminiscence group therapy could provide an

opportunity for people to review past experiences and get feedback from others who can share in those memories. Personal interaction within those groups is a way of preventing social isolation and participants may also benefit from improved psychological well-being (Lin, Dai, Hwang, 2013).

Gaps in Literature

Low levels of social activity have negative implications on overall quality of life for older adults living in long-term care settings (Franck, Molyneux, & Parkinson, 2016). Despite the recent growth of assisted living facilities, few studies have examined social activity participation in this care setting (Franck, Molyneux, & Parkinson, 2016). Considering the negative consequences of poor social activity involvement on older adults' health and well-being, more research is needed to determine ways to engage those who may be at risk for social isolation (Polenick & Flora, 2013).

Understanding the way that nature benefits people is important to help those who implement programs (Mayer, Frantz, Bruehlman-Senecal, & Dolliver, 2009). Bird Tales has been implemented only by conservatory educational experts. While the intention of the program is to be easy-to-implemented among long-term care facilities, not many facilities, or not at all, have taken the lead of implementing such nature-based programs. Therefore, this study was important to help practitioners to understand benefits of nature and consider developing or adopting a nature-based program in their facility for older adults with physical and cognitive limitations.

Cherniack and Cherniack (2014) have suggested the potential benefits of animals on the psychological health of older adults, however, despite the existing evidence, many studies reported issues that need to be overcome, such as gaining access and handling the animals, a fear of disease, and a lack of standardized survey instruments (Cherniack & Cherniack, 2014). Few

studies have been conducted on animal assisted therapy with the elderly, and even less are done with the assisted living population in general (Colombo, Buono, Smania, Raviola, & De Leo, 2006). Some of the studies done with cognitively intact residents have shown positive improvement resulting in reduced feelings of isolation and an improvement in social relationships (Colombo, Buono, Smania, Raviola, & De Leo, 2006). Animal assisted therapy programs require constant analysis and reporting of data to provide more evidenced based information on the benefits of pet therapy with the institutionalized older adults (Colombo, Buono, Smania, Raviola, & De Leo, 2006).

The presence of cognitive disabilities is often one of the key factors leading to admission to an assisted living facility (O'Shaughnessy, 2013). Low-levels of engagement were associated with a lack of program options for residents' due to multiple factors such as insufficient funding for programs and practices within each institution (Smith, Towers, Palmer, Beecham, & Welch, 2018). Long-term care facilities require a greater number of meaningful activities for their residents (Smith, Towers, Palmer, Beecham, & Welch, 2018). Research identifying the outcomes of programs in these facilities is needed to help expand the knowledge of successful program interventions on the adult population (Smith, Towers, Palmer, Beecham, & Welch, 2018).

Bird Tales

Bird tales is a program for engaging people with cognitive impairments through the natural world of birds (Bird Tales, 2013). This program was created by Randy Griffin, R.N., M.S., HNC and Ken Elkins, co-author, in association with the National Audubon Society. Bird Tales is a dynamic, low cost therapeutic program that can bring the experience of nature through exposure to birds. This program is specifically created for people with cognitive impairment to bring some sense of normalcy to their lives when they cannot get out and enjoy nature on their

own. Bird Tales defines a variety of nature experiences such as passive interaction, watching and listening to birds outside, sitting on a bench, looking at trees and flowers, and exposure to nature through images and videos. The more interactive approach, such as walking outside or gardening, is desired but even limited exposure can provide multisensory stimulation in emotional, behavioral, psychological and cognitive areas. This program can involve staff, visitors and outside groups that help broaden the span of social activity (Bird Tales, 2013).

Bird Tales program uses the Audubon™ Birds by Wild Republic, a set of realistic plush birds with authentic bird sounds because they provide the multi-sensory experience of touching and listening to birds without the use of live birds. They replicate the way a bird looks, feels, and sounds. Participants of this program are taught different facts about the birds, spend time listening to bird songs, reminiscence about old movies and songs related to birds, feed the birds, make their own bird feeders, and spend time exploring the overall impact birds have in their lives. Because the program involves nature and common experiences, conversations can be kept simple and the interactions can be enjoyable. All of the materials are available to the public to purchase online. While Bird Tales is implemented toward a focus on older adults with dementia, the simplicity of this program allows for it to be introduced to other audiences as well.

METHODOLOGY

Research Design

This is an exploratory research project to examine the perceived benefits of Feathered Friends, a multi-sensory based bird intervention program, for older adults living in an assisted living facility. Each participant received the intervention in a crossover randomized trial. A feature of crossover design is that each participant serves as their own control in a study (Wellek & Blettner, 2012). Eleven participants were recruited and randomly assigned to two groups, with

the first group comprised of six individuals, and five in the second group. Group 1 received the intervention for 6 weeks, then following a wash-out period of two weeks, Group 2 received the intervention. To keep from contamination, the control group was offered separate activities, such as talking with a graduate research assistant about general daily activities, while the experimental group was in the program. Qualitative data were collected with individual interviews of each participant at the end of the 6-week sessions. Therefore, all of the participants from both groups completed the interview. The questions were asked about their experience with the program as well as any increase in their well-being during their participation in the intervention. Semi-structured interviews are being used to capture any unique experiences that may not be exposed during the formal questioning. To appreciate their participation in the program, participants were given “bird-bucks” (Monopoly money) for attending each session to use at their facility’s bingo game event to purchase items. Additionally, each participant was given one of the stuffed birds presented during class at the end of the 6-week session. This project was approved by the University of Texas at Arlington Institutional Review Board (#2019-0136).

Intervention

Our research intervention was entitled “Feathered Friends” and utilized the curriculum and training materials provided through Bird Tales. Since this group was not solely comprised of people with dementia, many adjustments were made to the curriculum to keep the interest of the participants. Sub-activities (e.g., music, video) and additional materials (e.g., feathers, egg shells, bird feeders) were necessary because our study participants were more cognitively intact than participants with cognitive impairments in Bird Tales. The intervention was intended to increase social participation in a learning environment while reaping the emotional benefits of exposure to nature, specifically birds.

We chose 6 birds that are native to Dallas/Fort Worth and purchased plush birds available on Amazon to study in the sessions. Each week prior to the class a search was done on the bird of the week to identify music, facts or other engaging videos to share. The program was led by an MSW student intern (myself) under the supervision of the Principal Investigator of this study (Dr. Lee). The program planning was discussed with Mr. Elkins who is one of the creators of Bird Tales. Lesson plans were created each week with a different bird being the focus at each session. The sessions were designed to be approximately 40 minutes long in order to keep the residents engaged but not lose their attention. The duration was in line with their existing programs. The program was delivered for six weeks for each group, every Thursday afternoon from 11:00 am to 11:40 am.

Each week attention was focused on a new bird and we used plush bird models created by the Audubon Society to allow the residents to listen, feel and see the “bird of the week” up close. The bird models are small stuffed replicas of birds that simulate the bird sound made by each respective bird. The bird models are offered in a wide range of bird species and feature a fact card and a large, glossy photo of the bird. (Griffin & Elkins, 2012). We incorporated the Bird Tales templates and lesson plans and adjusted to add videos, true-false quizzes, and songs. The activity lessons included the following items: (1) studying the bird of the week and sharing facts about the bird, (2) educational videos (kept at less than 3 minutes), (3) questions and answers, (4) songs/stories, and (5) additional products such as real eggs and feathers for added sensory stimulation through seeing and touching. Upon each new session, residents were asked to recall the previous bird of the week and to share meaningful aspects, trivia, and recollections that may be remembered from the previous week. Please see Appendix 1. I provide a sample of the intended curriculum and lesson plan for Week 5.

Recruitment and Study Sample

Recruitment took place at an assisted living facility with approximately 35 residents. The research team visited the facility and held an introductory session to inform the residents about the program and what it entails. A total of 13 participants (37%) willingly chose to participate in the program during the research team's introductory session. At the end of the introduction, those interested were screened to identify level of cognitive ability. Potential participants were given Callahan's six item cognitive screen test (Callahan, 2002) and two simple memory recall tests. The memory recall tests used consisted of the investigator naming three objects and participants repeating items remembered as well as participants providing the accurate day, month and year. Participants were screened for cognitive ability to ensure participants were able to provide informed consent and for desire that participants be cognitively aware of their environment for the purposes of the intervention. Those who scored less than three answers were not eligible for the study. Two people were not eligible. We recruited 11 residents and randomly assign them into two groups (one group of 5, one group of 6). Random assignment was conducted using Excel.

Data Collection

First, demographic data were collected when participants signed the consent form. Information includes 1) Age 2) gender 3) Race/ethnicity 4) Highest education 5) Healthcare 6) primary diagnosis 7) scores of activities of daily living 8) Length of stay and 9) Assistance with mobility. Individual, semi-structured, face-to-face interviews were conducted by research staff with participants at the conclusion of each term. The interviews included an open-ended conversation and the chance to expand upon experiences and memories of nature. Interviews were recorded for transcription and a transcribing service was done professionally to verify all information was extracted verbatim. See Appendix 2 for interview questions. Qualitative

interviewing is based on conversation with an emphasis on listening to the respondent's answers (Warren, 2002). The focus of the interview is on the meaning of the answers, not just a correct response to a question. The purpose is to acquire personal interpretations of events and the meaning of the respondent's experiences (Warren, 2002). Interviews were approximately 30-40 minutes in length. Interview questions are semi-structured to explore the experience of the participant in Feathered Friends.

Lastly, after each session observation notes were taken and assessed as part of the analysis. Observation notes were taken by the research team members who observed the program in-person. Observation notes include observations from the person implementing the program, staff or other resident comments, and overall observation on class content and participation.

Data Analysis

Thematic analysis was used to analyze the data. Thematic analysis is a flexible and popular method of data analysis used to systematically identify, organize and offer insight into patterns of meaning (themes) in a set of qualitative data (Braun & Clark, 2012). Thematic analysis focuses on the meaning of data allowing the researcher to see and make sense of shared meanings and experiences (Braun & Clark, 2012). This method of data analysis is a way of identifying what is common to the way a topic is discussed among a set of people in order to discover the themes and capture relevant data. The commonalities among the group do not necessarily define the themes. The patterns that are identified were analyzed and identified by those that answer the specific research question.

Thematic analysis is an inductive approach to data coding and analysis. An inductive approach to data coding and analysis is a bottom-up approach and is driven by what is in the data (Braun & Clark, 2012). What this means is that the codes and themes arise from the content of

the data themselves so that the reported research closely matches the content derived from the participants. Observation notes were reviewed for further analysis of the program. See Appendix 3 for observation notes. I provide a sample observation note for Week 1.

The thematic analysis follows a six-phase approach as outlined by Braun and Clarke, 2006. Each transcript was gone through an extensive review and a thematic map was used to identify main themes, sub-themes and interconnections between themes (Braun & Clark, 2006), using ATLAS.ti® (Scientific Software Development GmbH, Berlin), a qualitative management software. Atlas.ti® was used to code the data, highlight themes, and reference quotations related to the identified themes. Inductive thematic analysis was then completed in six stages to produce the results. In the first phase, I thoroughly read interviews and then reread and coded with key words showing indication of potential themes or related information. To increase the trustworthiness of the findings, another research assistant was invited to review the initial themes and corroborate the final findings. The generated codes were then analyzed and grouped into broader categories to produce inclusive themes. The overarching topics were then further explored to understand the causal relationships indicated between themes including and the nature of the connections made. Specific steps below are taken to analyze the data.

Phase 1: Becoming familiar and take notes on the data by reading and rereading the text and listening to the audio recordings.

Phase 2: Do a systematic analysis generating initial codes of the data. The codes help identify and provide a label for any data that is potentially relevant to the research question.

Phase 3: This phase is where the codes turn into themes by capturing data and finding a pattern in the responses.

Phase 4: Quality check the emerging themes. Ask questions such as: What is the quality of this theme and how does it fit with my research and is there enough data to support this theme?

Phase 5: Themes are named and defined with an indication as to why they are unique and specific to the project. Themes generally have a singular focus and are not repetitive.

Phase 6: This phase is where the report is produced after the data is analyzed.

The process of thematic analysis on the interview transcripts helps to determine whether the research questions were answered in this project and identify any other benefits which may have not shown up in initial review and planning. Reviewing the observation notes aids in planning for future implementation of the program in other settings.

Results

Sample Descriptions

The Feathered Friends project included 11 individuals. The average age of them was 80 years old with standard deviation of 13.1. As seen in Table 1, one was male while the rest were female. Race of the participants was predominately white, with one African American out of 11 participants. Education ranged from one participant with no high school education, three participants with a high school degree, two with an associate's degree and five with a master's degree or higher. The number of limitations on activities of daily living ranged from six participants with no issues, four who encountered some issues with ADL's, and one who required help with more than four ADL's. Limitations on activities of instrumental activities of daily living were shared by eight participants with three who needed assistance with more than four IADL's. Assistance with mobility was not necessary for three of the participants, 6 needed use of a walker or rollator and one who was in a wheelchair and one with a mobility scooter. Residents

had been at the facility for time ranging from less than one year for four of the participants, 1-3 years for four participants, three years and over for the remaining two participants.

Findings from the Interviews

The thematic analysis resulted in development of the following four codes; nature, family, social interaction, and reminiscence. Then three themes emerged for perceived benefits of the Feathered Friends program from the interviews with the participants: (1) positive memories, (2) meaningfulness of birds, and (3) social stimulation and interaction. Names used in this thesis have been changed to protect confidentiality.

Positive memories. Across the interviews the participants shared numerous memories associated with experiences in nature and with families. Majority of the participants expressed happy memories that had occurred in nature over the duration of the life-span, touching on experiences from childhood, adolescent years, and adulthood. They specifically shared positive memories that they shared with their family members (e.g., spouse, parents, and children). Many participants made connections of birds and nature to their childhood. One participant said:

“You know. And years ago, you could go out for hours and hours. Nobody bothered you on your bike. And a bunch of us girls would pack a lunch and sit in the park, eat our lunch and ride our bikes.” (Dee)

She also started to recount very vivid memories with a smile on her face and made the statement that “everything was good” relating to the positive things she remembered;

“going outside and trying to climb a tree and my older brother Ken would pick me up like that. I had my sister and my brother and then I have a twin brother, but my older brother, he would help me pick up. There were trees out in the backyard and they had limbs on them and he picked me up and put me on his shoulders and put me up there. Everything was good.” (Dee)

One participant was continually evoking things that made her fondly remember her past;

“Well, like I said, as a kid, you're so involved with your friends and playing and everything, you don't really notice everything. And then as you get older, like I said, you see the birds going in and out of the bird house and everything, you're more aware. And I mean, I remember them as a child, birds, but now they seem more significant” (Ruby)

Specific associations were observed between aspects of nature and memories relating to family including familial relationships and experiences of parenting and child rearing. It was observed throughout the duration of the Bird Tales programming that negative memories associated were touched upon however were brief and did not receive as great elaboration as positive memories of nature. Generally, memories associated with nature were positive, happy experiences that were conveyed with fondness and a sense of nostalgia. One of the participants would talk about her family when remembering birds and nature;

“Well, I just grew up with birds. My mother and my older sisters especially liked birds, and oh, paid attention to them. And we just had birds around and my mother, when we were kids, always would let us look at the nests and taught us to leave them alone and to appreciate them. And she told us she could have identified several birds, so we learned what they were.” (Jane)

One participant related the love of birds to being a good person in general;

“And you know, usually people that like birds or have had experience with birds..are..are people that are trustworthy, people that are kind hearted, people that are good, you know? To me..birds...like a family.Yes, I looove birds.” (Ethel)

A member of the group who did not attend sessions as regularly as most participants, shared vivid memories of her childhood when interviewed. It seems that when she was talking about nature and birds her entire outlook and mood shifted to the better;

“Well, I've always had a bird at home or birds at home, and I used to like to change the feed and get them fresh water, clean their cages and talk to them. We had a parrot that was a talking parrot. He was an entertainment in itself. We called him Cocky Jones, because he was a cockatoo and, of course, he lived with the Jones family, so his name was Cocky Jones. He was a delight, always. We lost him. He was really old when he died, but it was a good loss to the family” (Ethel)

Meaningfulness of birds. The participants found birds as a meaningful and enjoyable creature. It was observed among the participants that a general likeness for birds, including interest and value for birds. Moreover, some participants possessed knowledge regarding birds and their habits and were eager and receptive to learn about new information relating to this subject matter. Participants reported enjoyment for the beauty of birds, bird sounds, and bird behaviors.

Though a general connection to nature was observed among the participants, the meaningfulness birds held among participants was unique. Birds were described with adjectives such as “carefree”, “peaceful”, and “happy”. During the Feathered Friends Program, the participants often made connections to the similarity between humans and birds relating to child rearing.

One participant often talked about birds and how they lived their lives in a similar manner as humans when it comes to taking care of their babies. In the interview she made this comment;

“And then the birds, they go out and get something. They have those nests in the trees and they go out bringing something back and feed their babies in there” (Debbie)

In comparing birds to a family, one person noted;

“I love to hear them sing, I want to see them fly. To me a bird in a home is like....it, it...how shall I explain...like a...a...family! Like if the bird has joined that family, it's a treat for that family to have birds in the trees or to have birds that they bond with or something...but yeah I always loved birds. (Debbie)

Another participant related her love of birds in this statement;

“When I think of nature, I cannot see any place where you go without birds and you can hear them singing or even just see them flying if they don't sing. But yes, we always had a love of birds in our family.” (Shelia)

Others related the birds to their everyday conversation with family and friends as they learned more about them. Birds brought out positive emotions in the participants when they were asked how they felt about them. One of the program participants was a very eager and interactive participant. She would remember the lessons long after they were over. She also commented that she was sharing this information with her loved ones:

“I would say that to one of my daughters, whichever one I see, did you know that a Mockingbird can imitate 200 different sounds?” (Ethel)

Some were reminded of their connection to birds and they often said they would look for birds outside more often. The participants were often surprised that they knew so little about the everyday birds we were studying. Others in the group would often speak up about the birds and help educate each other in the group. In his interview one of the participants said;

“I think what amazed me the most is, I had knowledge about birds I didn't even know I had.” (James)

Social stimulation and interaction. The approach of the Feathered Friends activity included a variety of multi-sensory experiences such as, live video footage of bird feeders at Cornell University which played for the duration of each session, songs, cartoons, and other forms of media that related to the bird discussed in each session, plush birds which made bird sounds, feathers, and bird eggs. A variety of these activities motivated the participants to actively engage in conversations with their peers. They also learned about each other through shared memories of birds and nature. One member noted in her interview that she learned from others;

“I enjoy getting to know about the different birds... I mean I've seen bluebirds but I didn't know the difference between bluebirds and blue jays. And James did teach us a lot about blue jays and blue birds” (Francis)

One member actively shared his knowledge of birds with others and others would remember what he said;

“Especially to hear someone else's experience. Like Mr. James, you know, I love the way he brings up something, he has such a good memory and brings up things in the past and everything. Mhmm. And I like to hear about other people's experiences with birds and I love birds”. (Jane)

One participant said she looked forward to coming every week because it gave her something to do and get out of her room for. She often reflects that she is bored and that at age 98 she has nothing left to do.

“I didn't find any gripes on the program, the fact that I couldn't see, and that's nobody's fault but mine. I thought it was good to get people out of their apartments and talk about something else, and birds are good a topic, they're mainly pleasant. When you're not sitting out there where you might get something that you didn't want in your head. You've heard about the two inmates at the asylum, haven't you? Well, there was these two men, or inmates in a mental institution and they went out with their nurse one day and sat on a bench, and along came a bird and made a deposit on one of the men's head. And the nurse said, "Oh, just sit there. I'll run back in the building and get some toilet paper." And they sat there for a while, and finally one inmate said to the other, "That bird's going to be miles away by the time she gets back." (Ruby)

Others in the group expressed the need for more interaction and less time in their rooms. They found the time with their peers to be pleasant and looked forward to the sessions each week. One member made this comment during her interview;

“I don't want to stay and sit in this room 24 hours a day and a lot of people don't, and I don't like to stay in that bed” (Ruby)

She also commented on the social aspect of the program by saying;

"I've enjoyed it. It got my mind off other things. Interaction with other people and about a subject that I know a little about and learned a little more about” (Ruby)

Findings from the Observation Notes

Observation notes were made by the program facilitator, research assistants, and the Principal Investigator of the research project. Three themes emerged to complement perceived

benefits of the program identified by the participants: (1) positive behavioral change, (2) positive mood, and (3) active participation.

Positive behavioral changes. One resident who was not a participant, however, enjoyed engagement with research staff and often visited with research team for lengthy amounts of time. She would often share with research team her observations regarding the individuals attending the groups with comments such as “the program is helping them” and “I can see they are doing better and talking more”. Resident would often share stories from her childhood and younger years with research team as she developed relationship through continued engagement. Researchers also noted an improvement in the moods of participants as they eagerly awaited the sessions and looked forward to them.

Positive mood. One member has a primary diagnosis of depression and was in the 1st intervention group. Participant did not indicate levels of depression on the geriatric depression short form, yet had been suffering from bouts of depression since she was admitted to the facility. Participant attended each intervention group and often helped the other residents with wheel chairs and walkers after the group was finished. She was observed to be smiling, talking and laughing in the sessions and was always willing to interact with others.

Active interaction. Music was noted to be one of the most enjoyable methods utilized in the program and helped residents remember when they heard the song and what meaning it had. When music was turned during the activity, the participants actively interacted with the materials and the facilitator. They also shared positive memories that have related to the music with others. Upon beginning the 2nd intervention group, one participant continued to respond to assessment questionnaire in similar fashion (indicating depression), however mood and behavior appeared significantly elevated than in previous weeks. During Week 10-12, client began sharing jokes

related to bird tales program curriculum and existing memories regarding birds covered.

Participant began to smile more and became quite chatty in bird group. Participant began to express eagerness for program each Thursday remarking “the program gives us something to do” and would often remember the bird to be covered each week, after learning from the previous week. During week 10-12, participant would walk laps around the residential facility while waiting for program to begin.

In addition, the majority of participants commented about the plush birds such as, “it sounds just like a real bird”, and “it’s so soft and small”. When the videos played remarks were made about “how smart a bird is” and “I didn’t realize they did that”. The stimulation created by the agenda was successful in getting the residents to engage and react in a manner that may have not happened with only visual items.

Discussion

Summary of Findings

The purpose of this project was to determine the perceived benefits of a program involving nature and birds implemented at an assisted living facility. After analysis of the interviews, findings showed attending Feathered Friends brought about positive feelings in the residents and they were able to continue those feelings by sharing and reflecting on the past. Results also showed an increase in social participation, reminiscing and active engagement in the subject.

In the Bird Tales study, it was affirmed that just being exposed to nature through sight, sound and touch, showed an increase in attention capacity. Additionally, bird song helps to relax participants and stimulate memories and prompt conversations (Bird Tales, 2013). The Feathered Friends sessions were adapted from the Bird Tales and designed to ensure participants

were actively engaged, learning and discussing the subject matter. The sounds they enjoyed were on the live video, music related to the bird of the week, the plush toys, and other fun, educational type videos. Participants were able to touch the plush toys every week and touch and hold feathers and eggs as they learned more about them.

In accordance with the Continuity Theory of Aging, participating in programs involving leisure activity as a continuation of previous participation can help people relax, enjoy themselves and interact socially in new environments (Minhat, Rahmah, & Khadijah, 2013). Continuity theory is tied with reminiscing due to older adults using familiar knowledge and skills to adapt to the aging process (Lin, Dai, Hwang, 2013). Group activity where participants reminiscence is helpful in starting and maintaining conversations, linking individuals together through shared experiences, and decreasing social isolation (Lin, Dai, Hwang, 2013).

In studies on social isolation, it was noted that older adults who are isolated have a reduction in well-being and overall quality of life (Frank, Molyneux, & Parkinson, 2016). Additionally, multiple studies suggest that recreational activity positively relates to resident happiness and life satisfaction, and negatively relates to depression (Plys, 2019). An increase in the variety and availability of programs equates to more activity among the residents and less social isolation (Plys, E., 2019). Researchers also found most programs offered at assisted living facilities were stereotypical activities such as bingo or cards and that residents have criticized this type of programming for lacking variety and lacking physical or cognitive challenges (Plys, 2019). It was suggested that participation in these activities may simply be an opportunity to combat boredom or as a distraction from emotional struggles.

Limitations and Future Directions

This pilot study had small sample size due to partnership with one local assisted living facility. Many residents were not interested in committing to this research project for a variety of reasons including their mental capacity and their lack of desire to learn about birds or be in a social environment. Although efforts were made to recruit individuals by approaching them in their rooms, there was little interest and some confusion about what the class was about and what level of attention was needed from the residents. To increase the number of participants, other ways of recruitment should be considered. One idea would be to introduce the program at multiple time slots and at different social activities to capture a larger audience. In this project, we sent materials to the director of the facility prior to coming and introducing the program to the residents. In future projects, it is recommended that the residents have some exposure ahead of time as well. A flyer about the program would allow them time to read about it, to understand what the program entails, and to consider if they were interested in participation. Finding ways to increase staff interest could help create a more cohesive group and staff can help provide individual attention to residents who need extra help with communication.

Findings could be biased due to my personal perspective since, as the researcher, I was the one who facilitated the intervention and interacted with the residents. However, to validate the results, cautions were taken when creating themes by having another research assistant review initial themes and corroborate the findings.

To ensure the best outcome for the program it is important to involve the staff at the assisted living facility. Staff can play an integral role by reminding resident's when the time comes for the program, talking to them about the program in-between sessions, and encouraging them to participate. Feathered friends was intended to be an easy-to-implement program that can

be led by staff at the facility. However, it is recommended that the individual commits to the time and to training on the subject before classes can begin. Training staff would involve the basics of the program, what is involved in each session, and how to interact with residents about the subject of birds. The Bird Tales program often involves the use of live birds and a bird expert through the Houston Audubon Society. It would be ultimate if the partnership could be between a conservatory organization and an assisted living facility. The curriculum of Feathered Friends still allowed for the class to educate and entertain without the use of live animals; however, Bird Tales reported a very high level of engagement among the presence of live birds and if possible. It is unknown whether the presence of live birds could cause a distraction and a decrease in social interaction among those who are cognitively intact and if this may change the outcomes of the program.

Bird tales is a program to engage people with dementia through the natural world of birds (Bird Tales, 2013). Feathered Friends did not require dementia to qualify for participation and strove to engage and entertain a variety of cognitive levels. If this program is implemented among an audience with dementia, it should be altered to a simpler format. Bird Tales relied on the senses to engage dementia clients and had a simpler agenda for this audience. In recreating this program, it would be advised to adjust the curriculum to match the levels of cognitive engagement from the residents in attendance.

Implications for Social Work Practice, Policy, and Education

Social workers are needed in the field of aging as the population of older adults increases. Essential social work practice skills, such as mental health counseling, care planning, coordination of decision-making and transition process, case management, advocacy and family support are needed in assisted living facilities (Koenig, Lee, Fields & Macmillan, 2011). Social

workers aid clients and family members as they deal with issues of anger and grief and advocate for services that can increase the quality of life for residents (Koenig, Lee, Fields & Macmillan, 2011). Not every assisted living facility has a social worker on staff, however, those who do are typically working in a variety of roles to support the resident. Social workers act as transition coordinators by helping the individual and family move into the facility, advocate for the residents by ensuring they are getting the services they need, and offering emotional and mental support and resources (Koenig, Lee, Fields & Macmillan, 2011). Feathered friends could be implemented at a variety of locations with social workers or activity directors. Options could include community senior centers or senior housing communities where programming is needed.

Assisted living is a state regulated and monitored residential long-term care option that provides services to meet the individual's needs (Workgroup, 2003). Services that are required by state law to be provided or coordinated must include: 24-hour staff, support with assistance of daily living, health related services, social services, meals, housekeeping and recreational activity (Workgroup, 2003). Despite federally endorsed regulations regarding standard activity practices at nursing homes, assisted living facilities do not fall under these guidelines (Mihalko & Wickley, 2003). Programs offered at assisted living facilities are typically understaffed, not tailored to resident interest and not designed to improve function and mobility (Mihalko & Wickley, 2003). Behavioral theorists suggest that change interventions may have the greatest impact when they include physical activity and social interactions (Mihalko & Wickley, 2003). Therefore, social workers as well as activity managers can play a critical role to review and introduce a creative and meaningful activity, such as Feathered Friends to the residential setting. For example, they could collect the data to understand the impact of this program to make suggestions and assess the need for this type of intervention.

As the baby boom cohort continues to age and many frontline social workers retire, the need for gerontological social work will grow even larger (Ferguson, 2012). For students, aging ranks last among the choices of mental health, child welfare and health and family services (Ferguson, 2012). Studies have shown ageism could be one of the reasons younger people stay away from working with older adults and education on older adults can help change the perception into a positive one and encourage more students to enter the field (Ferguson, 2012). It may seem appropriate to include graduate students who are interested in aging to train them how to deliver meaningful activities to older adults and provide a hands-on experience in the field.

My decision to become a gerontology social worker was made due to my interest in the field of aging and my desire to impact the health and well-being individuals as they age. I had close relationships to my grandparents and have spent time as an adult working with older adults and I knew that I wanted my work to support this population. My decision to get a Master's degree in Social Work happened at an older age than some of my counterparts. Going to the University of Texas at Arlington opened a world of opportunities to me, especially when I was hired as a graduate research assistant. This role allowed me to work closely with older adults and to implement the Feathered Friends program. I have always believed that nature has healing properties and this program was a good opportunity to include the nature experience. While leading the intervention and interacting with older adults, I was able to see the changes in the residents and the excitement they experienced as they learned new things about birds. I was also amazed at the amount of recollection of pleasant memories that were prompted by being in a program involving nature. This was a very positive experience for me and for the participants and I hope that this program can be replicated and enjoyed by older adults in activity settings in the future.

Conclusion

This research aimed to identify the perceived benefits of exposure to nature through a program involving birds at an assisted living facility. Based on a qualitative analysis of interview responses and observation notes, it can be concluded the program had benefits such as an increase in social interaction, positive feelings and memories. Bringing nature to a program not only offers a fresh, new and innovative way of programming, it also creates other benefits by exposure to nature even in an indoor setting. Birds have been associated with childhood, family, transitions in life, peacefulness and spirituality. Using birds, or other animals, in programs with older adults should be considered important as a link to nature. Based on this study, social workers should strive to incorporate nature in their work with older adults. Additionally, assisted living facilities should be considered as partners when creating and implementing programs. The older adult population in assisted living facilities should be offered meaningful programming to enhance their psychosocial well-being. A more diverse schedule of program activities would be beneficial to the residents in these facilities.

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Table 1.

Bird Tales Demographics (N=11)

| Demographics | Number | Percent |
|--|--------|---------|
| Age (M=80.5; SD=13.1) | | |
| Gender | | |
| Female | 10 | 90.9% |
| Male | 1 | 9.1% |
| Race/Ethnicity | | |
| Black | 1 | 9.1% |
| White | 10 | 90.9% |
| Hispanics | 0 | 0% |
| Highest Education | | |
| High school/No diploma | 1 | 9.1% |
| High school graduate/GED equivalent | 3 | 27.3% |
| Associate degree | 2 | 18.2% |
| Bachelor's degree | 0 | 0% |
| Master's degree or higher | 5 | 45.5% |
| Number of limitations in activities of daily living | | |
| None | 6 | 54.5% |
| ≤3 | 4 | 36.3% |
| 4≤6 | 1 | 9.1% |
| Number of limitations in activities of instrumental daily living | | |
| None | 0 | 0% |
| ≤4 | 8 | 72.7% |
| 4≤8 | 3 | 27.3% |
| Assistance with mobility | | |
| None | 3 | 27.3% |
| Walker | 3 | 27.3% |
| Rollator | 3 | 27.3% |
| Wheelchair | 1 | 9.1% |
| Mobility scooter | 1 | 9.1% |
| Length of stay | | |
| Less than 1 year | 4 | 36.3% |
| 1 – 3 years | 4 | 36.3% |
| 3 years and over | 2 | 18.2% |
| Missing | 1 | 9.1% |

Appendix 1.

Intended Curriculum and Lesson Plan

Feathered Friends - Lesson Plan: Week 5

Materials

Plush woodpeckers (3)
Cardinal, blue jay, robin and mockingbird plush
Eggs
Woodpecker ID card
Egg ID card
Laptop for video
Speaker for sound

Time: 40 minutes

Welcome!

Greet all participants by name

Remind them of your name and that we are doing our FIFTH (only one more) feathered friends session!

Before the bird of the week is introduced, ask this question to each participant:

This week we will be learning all about the Downy Woodpecker. But, before we start talking about our new feathered friend, let's not forget our friends from the past few weeks...

Ask participants questions regarding birds from past lessons:

Q1: Do you remember learning about the cardinal? The blue jay? The robin? The mockingbird?

What do you remember?

Show cardinal - listen to it, pass it around. The cardinal is the bright red bird. The male is red and the female is brown with a bright orange beak. They do not migrate so you will see them year round. They have many sports teams and college teams named after them.

Show blue jay - listen to it, pass it around. The blue jay is known for their intelligence and tight family bonds. Blue Jays are large crested songbirds with broad, rounded tail. -Blue Jays are most often detected by their noisy calls.

Show robin - listen to it, pass it around. The robin is known to be the first sign of spring. Robins eat from the ground and their favorite food is worms. Robins are known for their beautiful song.

Show mockingbird - listen to it, pass it around. The mockingbird is known to repeat sounds including other bird songs. The mockingbird can learn up to 200 songs.

Now let's learn about our bird of the week, the downy woodpecker.

Pass around the bird

Look at the color patterns

The tail, wings, and back of the downy woodpeckers have a black hue intermingled with white spots. A black cap adorns each, below which there is a white stripe. A small scarlet patch appears on the lower-back of the head. Another black stripe is below this. The downies have barred outer tail feathers not found on other birds. The tail feathers help them anchor to a tree.

Listen

Squeeze bird and have participants listen to the birds as they are passed around

Q1: This bird uses an instrument to make noises! His drumming sound is not always looking for food, it's a way of communication

Q2: Have you heard this sound before? Was it a woodpecker or maybe a hammer? How would you know the difference?

LISTEN to the sounds (short sound track on video to show other sounds besides drumming)

https://www.allaboutbirds.org/guide/Downy_Woodpecker/sounds

VIDEO

The downy woodpecker



<https://www.youtube.com/watch?v=vuAOc6I9jhA>

We ask them about their experience with woodpeckers, if any:

Q1: Have you seen woodpeckers growing up?

Q2: When is the last time you saw a woodpecker?

Q3: Do you like them? Why? Why not?

Q4: Can you think of any memories you have had with woodpeckers?

Q5: Have you seen any in the courtyard? When we put the suet feeders out they might come visit

Explore the woodpecker, explain in more detail (fact sheet)

Woodpeckers

Known for banging on things, but also, they are creating apartment buildings for other forest animals! They are known as?

Carpenters

Q1: Do you know of anyone who reminds you of a woodpecker?

Q2: Have you ever worked as a carpenter? Do you know anyone who did?

Q3: What other types of jobs would a woodpecker do?

Trivia

Q1: Why do they have a different tail from other birds?

A: They use their feathers to support them as they lean on the tree and climb it

Q1: Woodpeckers have extremely large _____?

A: Tongues they use to forage for insects in the tree.

Q2: What are the 3 reasons woodpeckers peck on trees?

A: To get food, to make cavities, and to proclaim their territories.

Q3: What is the number one reason woodpeckers peck?

A: They peck for communication and even have their own language

Q4: Can you guess what woodpeckers are known for with the native Indians?

A: Life and spiritual energy – Woodpeckers drumming is associated with ‘heartbeat’ of the Nature itself. For Native Americans, this incredible bird embodies the concept of life, connection with Mother Earth and an everlasting energy that flows through all living things. Woodpeckers’ characteristic noise is identified with pulse of the Earth itself.

Q4: Do you know any famous woodpeckers?

A: Woody woodpecker

Woody was created in 1940 by Lantz and storyboard artist Ben "Bugs" Hardaway, who had previously laid the groundwork for two other screwball characters, Bugs Bunny and Daffy Duck, at the Warner Bros. cartoon studio in the late 1930s.

The inspiration for the character came during the producer's honeymoon with his wife, in June Lake, California. A noisy acorn woodpecker outside their cabin kept the couple awake at night, and when a heavy rain started, they learned that the bird had bored holes in their cabin's roof. As both Walter and Gracie said during a visit, Walter wanted to shoot the bird, but Gracie suggested that her husband make a cartoon about the bird, and thus Woody was born.



<https://www.youtube.com/watch?v=RnpZpAPaLew>

Q1: Woody woodpecker came out in the 40's. Do you remember what you were doing at that time?

Q2: What can you share about your experiences during the 40's.

Q3: Do you remember hearing watching this show? What did you think of it when you were a kid?

Downy Woodpecker:

Share bird fact card and additional information about the downy woodpecker

- The downy woodpecker eats foods that larger woodpeckers cannot reach, such as insects living on or in the stems of weeds.

- Male and female downy woodpeckers divide up where they look for food in winter. Males feed more on small branches and weed stems, and the females feed on larger branches and trunks.
- Downy woodpeckers eat mainly insects, including beetle larvae that live inside wood or tree bark as well as ants and caterpillars.

This drumming is the Downy's song, though they do make some vocal noises. They have several single-syllable call notes which include tchick, an aggressive social note; a tick and a third, which are alarm notes. There is also a location call, known as a "whinny", made up of a dozen or more tchicks all strung together.

Study bird EGGS - pass around

Show bird egg diagram and explain the different parts. Other facts about bird eggs:

All bird eggs are amniotic, which means they include a hard shell, a porous membrane for the exchange of oxygen and carbon dioxide, and a rich yolk that nourishes the developing chick. The yolk is made of fat and protein, and the yolk color varies depending on the quality of the laying female's diet.

Eggs come in many different shapes. Budgerigars and many owls lay round or spherical eggs.

Oval-shaped eggs are the most common.

The colors of wild bird eggs range from plain white to a rainbow of hues such as blue, green, ivory, tan, beige, gray, red, and orange.

The thickness of eggshells varies, but has to be thick and strong enough to support a brooding adult and the growth of the developing chick. The shell cannot be so thick, however, that the hatching chick cannot peck its way out.

Because eggs are so rich in protein, fat, and nutrients, they are highly coveted sources of food for many predators. Squirrels, rats, reptiles, cats, snakes, raccoons, and many other predators will eat eggs.

If there is time, watch this video on eggs:



<https://www.youtube.com/watch?v=-Ah-gT0hTto>

Q1: What do you think of when you see how an egg is made?

Q2: Did you grow up in a place where you experienced fresh eggs?

Q3: What have you cooked with eggs?

Q4: Have you ever seen a baby bird? Do they remind you of baby humans? What is it that is the same? What is the difference?

Pass out bird bucks

Fill bird feeder - give residents a chance to look, and touch the seed

Dismiss class and remind them to look for birds outside at the feeder!

Appendix 2.

Interview Questions**1. What does nature mean to you?**

- Do you have any memories of being in nature as a child/ as an adult? Can you share a few of them?
- What types of activities did you do outside as a child/as an adult? Can you share a few of them?
- If any, could you tell me about your experience with birds?
- How do you feel thinking of those memories?

2. How was your experience with the Feathered Friends program?

- What did you enjoy the most/least?
- Do you think the Feathered Friends program helped bring about the best memory you have about being in nature?
- Do you think the Feathered Friends program helped bring back any memories of birds? Can you elaborate?
- Do you think the Feathered Friends program helped make you feel more connected to your past? Can you explain?

Appendix 3.

Sample Observation Notes

| | |
|-----------------------|---------------------------|
| Date | 8/8/19 |
| Week | 1 |
| Start Time | 11:00AM |
| End Time | 11:40AM |
| Bird | Cardinals |
| Topic | Be appreciative of nature |
| # Participants | 6 |

| Participant Observation |
|--|
| <ul style="list-style-type: none"> • They positively reacted to touch, see, and listen (e.g., showing big smiles) – Plush toys, pictures, and the bird sound more than asking direct reminiscing questions. • The residents enjoy learning new things about the bird (e.g., differences between females and males) – Fact sheet would be helpful. Have a short and simple quizzes (trivia) to keep them engaged. • They said birds make them happy; they love birds • One said “my mom used to love birds.” • One shared lots of stories of son and the previous experiences with the birds. • One said “feather reminded me of a hunting hat” |

| Feedback for Improvement |
|--|
| <ul style="list-style-type: none"> • Wear a wrist watch, instead of using a phone, so that you can track your time. • Beginning- introduce yourself and officially welcome them. Name tags help. • We can have bird singing background while they are coming and settling in. • Let each person push the button of the plush toys. • Give them some time to think and respond (Don’t ask and answer yourself.) • It was also good that you asked a question to the participants “how do you know cardinals are different from other red birds?” • Highlight the one or two main characters of each bird – Female cardinals are homemakers and use it as a new subject for discussion/reminiscing. • Prepare different information about feathers and eggs each week and explain while they are touching and watching it. • Reading a book was really good. • Great job at asking questions to those who haven’t talked. • Demonstrate putting the bird food into the feeder. • Spend some time asking if they have watched cardinals or other birds in their backyard. • Mention their names and thanking them to come. |

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| Written by | Kathy Lee |