ORIGINAL RESEARCH

Analysis of Intergenerational Programs Among Alzheimer's Dementia Patients

Audrieanna E. Raciti
University at Buffalo, The State University of New York, Buffalo, NY USA
Corresponding Author: Audrieanna E. Raciti, University at Buffalo,
The State University of New York Email: audriean@buffalo.edu
doi: https://dx.doi.org/10.47988/janany.23559123.1.2

Abstract

Purpose: The purpose of this review is to synthesize evidence regarding the implementation of intergenerational programs with a specific emphasis on toddler age groups of children and their direct interaction and outcomes measurement with individuals residing in long term care facilities with progressive advancing dementia. ***Methods:*** Articles chosen for this review were examined for the effects of intergenerational therapy programs for elderly patients with dementia and children from infancy up until kindergarten. Eligibility criteria included research published in the English language, between 1980 to the present, nursing home-based elderly population, and children up to five years of age. ***Results:*** Positive themes included improved cognition, relationships, and positive affect. Gratification, improved cognitive functioning and relationships, and overall improvement in psychosocial status were also identified. Statistical significance was identified among improved stress levels using the Beck Anxiety Inventory. Negative outcomes identified across studies included feelings of fatigue, frustration, and an unwillingness to participate for unidentified reasons. ***Conclusion:*** Advancing life expectancy predisposes our population for a heightened occurrence of dementia diagnoses, with concerns for both physical and mental illnesses. Continued research in this population to include novel methodologies to prevent many of these fatal comorbidities is critically indicated. Emerging trends appear to be moving away from traditional pharmacotherapeutic measures, with a shift toward safer, most cost-effective cognitive and behavioral approaches. Intergenerational programs could potentially serve as an alternative therapy which could provide improvements on quality of life among our elderly residents with dementia residing in long term care facilities.

Keywords: Intergenerational program, Alzheimer's Dementia, Children, Long-term care

Funding: No sources of funding were provided for this systematic review.

Conflict of Interest: The author declares no actual or potential conflict of interest.

Date Submitted. May 20, 2021 Date Accepted: July 9, 2021 Date Electronically Published: August 15, 2021

Analysis of Intergenerational Programs Among Alzheimer's Dementia Patients

Dementia is an insidious disease which results in a progressive decline in cognition among one or more cognitive domains of learning, language, executive functioning, attention, motor, and social cognition (Larson, 2021). Deficits manifest as a noticeable decline in function which inhibits the ability of the individual to carry out activities of daily living safely and independently (American Psychiatric Association, 2013). This loss of function not only becomes detrimental to the affected individual, but to caregivers and family members directly and indirectly involved in their care and management. As a result of functional and emotional loss, social isolation may ensue, resulting in further cognitive impairments (Galbraith et al., 2015).

The rapid prevalence of this disease is also concerning. About 6.8 million Americans have been diagnosed with Alzheimer's, with this number projected to double by 2050 (Alzheimer's Association, 2021). Since the COVID-19 pandemic, this disease has increased at an alarming rate by 16%, costing roughly $355 billion in medical expenditures (Alzheimer's Association, 2021). Opportunities for improvement among this population include alleviation of stigmatization, polypharmacy, inappropriate segregation, and exclusion from many activities of society, which may help to improve socialization and meaningful relationships among others (McNair & Moore, 2010).

Modern medicine has advanced the life expectancy of older individuals, widening the gap of disconnect between the elderly and younger generation (Lin et al., 2017). The development of intergenerational programs, defined as combining health promotion programs between these two age groups, allows the younger generation an opportunity to directly interact and socialize with older individuals with childhood educator oversight. On the other hand, older generations can potentially improve their creativity in various ways to promote health and facilitate positive aging perceptions while improving interpersonal relationships (Lin et al., 2017). Intergenerational program research has been shown to remove perceived communication barriers, with the initiative of encouraging a cost-effective strategy to promote safety and improve quality of life among patients with dementia (Lin et al., 2017). Alternatively, toddlers and preschool age children can benefit greatly from these interventions, as thought processes such as positive generalizations can begin during their earliest stages of development (Galbraith et al., 2015).

Few researches has been conducted identifying the effect of intergenerational programs on health outcomes among people with advanced dementia residing in long term care facilities (Black, 2011; David et al., 2011; Low et al., 2015). In 2015, Galbraith et al. performed a scoping review on the use of intergenerational programs and the positive impact that this intervention can have on quality of life and well-being across individuals with dementia. The inclusion criteria included both inpatient and outpatient individuals with dementia, although was not specific to those residing in long term care (Galbraith et al., 2015). This scoping review was also conducted prior to the recent COVID-19 pandemic, with facility-wide changes and newly emerging research interventions requiring more up to date review of the current literature (Galbraith et al., 2015).

The importance of improving health outcomes among this specific population is pertinent for the present and future of today's health care quality measures to improve overall quality of care as well as decrease the costs of unnecessary hospitalizations among those residing in long term care with progressive advancing dementia (Lin et al., 2017). The purpose of this review is to analyze intergenerational programs among individuals residing in the long-term care facility with progressive advancing dementia.

Methods

Eligibility Criteria

Article screening for this literature review was conducted by two authors and a doctoral-prepared professor. Characteristics which were examined included evaluation of intergenerational therapy programs for elderly patients with dementia and children from infancy up until kindergarten. Data collection methods included in-person and telephone interviews, on-site observations, surveys, evaluation forms, debriefs, and video recording analysis. Length of follow up and treatment were not considered for inclusion criteria due to limited number of articles on this specific topic. Articles selected for review included those published in the English language, from year 1980 to present, nursing home-based elderly population, and children up to five years of age. All included studies focused on individuals with a diagnosis of dementia, with the majority of articles focusing on individuals with moderate to severe cases. An electronic search of published articles and grey literature was conducted.

Information Sources/ Databases

The search strategies were organized with the assistance of an experienced healthcare librarian. An online literature search was conducted May 1, 2021. A final count of 12 articles were collected from the following Electronic Databases and hard print: CINAHL, PubMed, Cochrane, Web of Sciences, Psychinfo, Embase, Nuring Reference Center, and ERIC. The following journals were hand searched for relevant articles: *BMC Geriatrics, BMC Family Practice, BMC Neurology, BMC Complementary and Alternative Medicine, BMC Nursing, Cleveland Clinical Journal of Medicine, Neurology: Neuroimmunology and Neuroinflammation, Systematic Reviews, BMC Clinical Pharmacology, and Journal of Gerontological Social Work.*

Search Strategy

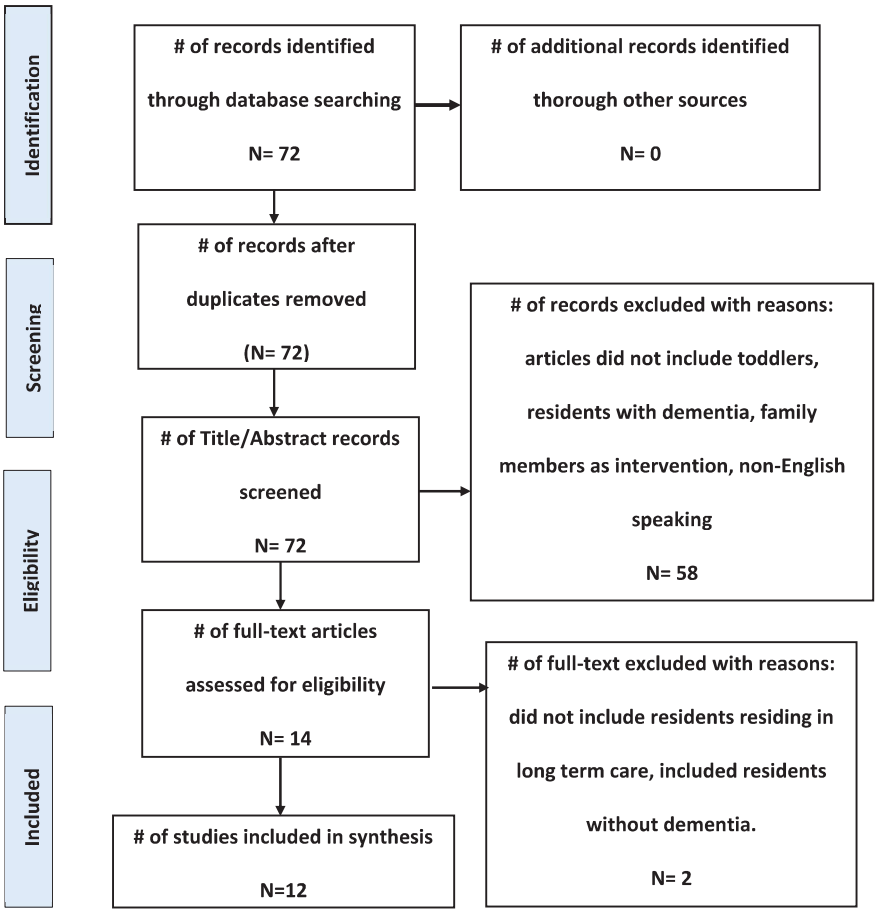
Boolean Operators were used for each database throughout the literature search in order for the search process to be repeated. These included: "Alzheimer's Disease" OR "Alzheimer's Dementia" OR "Cognitive Decline" OR "Dementia" OR "Cognitive Impairment" OR "Alzheimer's" AND "Intergenerational Care" OR "Intergenerational Relations" OR "Intergenerational Program" OR "Adult-Child Care" OR "Adult-Child Relations" OR "Adult-Child Programs" OR "Intergenerational Therapy" AND "Long term care" OR "Nursing Home."

Study Selection

Articles were first screened with the use of the above-mentioned Boolean operators. The PRISMA Flow Diagram is shown in Appendix A (Page et al., 2020). Titles and Abstract review excluded duplicates, articles including children greater than kindergarten-age, residents without a diagnosis of dementia, or family members as the intervention group, with a total of 14 articles remaining. Full-Text review excluded publications of residents not residing in long-term care and residents diagnosed with dementia, resulting in 12 articles included within this literature review.

Figure 1

PRISMA Flow Diagram



*Page, M., McKenzie, J., Bossuyt, P., Boutron, I. Hoffmann, T., Mulrow, C., Shamseer, L., Tetzlaff, J., Akl, E., Brennan, S., Chou, R., Glanville, J., Grimshaw, J., Hróbjartsson, A., Lalu, M., Li, T., Loder, E., Mayo-Wilson, E., McDonald, S. ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ, 372*(71). doi:10.1136/bmj.n71

Data Collection Process

Data extraction from reports were collected by an independent peer-review researcher. Risk of bias was assessed using independent peer-review of a second researcher following completion of this literature review for critical comparative analysis and identification of any potential unidentified sources of bias. The search process was replicated with the same number of articles collected from the first review. Once compared, any disagreements were resolved by a third reviewer (doctoral-prepared professor). Melnyk criteria was utilized to assess quality for all identified articles within this review (Mazurek-Melnyk & Fineout-Overholt, 2005). Risk of bias across studies may have been a factor due to many studies not being published with negative or insignificant findings with regards to the intervention application to the specified population.

Results

Study Characteristics

Article Publication

Ten (10) articles were initially selected for inclusion within this literature review and synthesis. A majority of the articles were written within the last ten years, 2 additional articles written in 2002 and 2005 were included due to rigor of the study and timeframe of the selected participants. A total count of 12 articles were included in the final review and synthesis.

Intervention Method

All articles included the use of intergenerational care as their method of choice for intervention with this subset of the population, with slight differences in variation between ways of

encouraging interactions between the young population and the elderly. David et al. (2011) utilized an intergenerational music program, while George and Wagler (2014) created social learning and innovation with intergenerational reading programs. The majority of the other articles discussed non-structured playgroups (Janke et al., 2019; Low et al., 2015; Skropeta et al., 2014), while some articles failed to specify the child-adult interaction playgroup studies (Sloane et al., 2002).

Table 1

Data Matrix for Included Studies

Author	Title	Sample Size	Country	Timeframe	Design	Measurement Tool	Outcome (Elderly)
Black, K. (2011)	Combining the young and the young at heart: innovative, intergenerational programming throughout the continuum of long-term care	Adults: 276 Children: N/A(toddlers)	U.S.A.	30-45mins. daily	Observational	N/A	Positive: Memories, gratification and joy. Negative: Tiring, some prefer to not participate.
David, J., Yeung, M., Vu, John, Got, T. & Mackinnon, C. (2011)	Connecting the young and the young at heart: an intergenerational music program	Adults: 20 Children: N/A (3rd-6th grade)	Canada	6 visits within a 4-week timeframe	Qualitative	Debriefs from LTC staff, music teachers, elderly, students, and program facilitators.	Positive: cognitive function, meaningful relationship psychosocial status. Negative: N/A
Galbraith, B., Larkin, H., Moorhouse, A. & Oomen, T. (2015).	Intergenerational programs for persons with dementia: A scoping review	Adults: 27 Children: NA (18 and younger)	Canada	4 weeks	Mixed Methods	N/A	Positive: Purpose, self-esteem, youthfulness, anxiety, positive affect, increased mobility, hand-holding, eye-contact, verbal interaction, agitation. Negative: Distress during structured activities, less verbal interaction.

George, D. (2011).	Intergenerational volunteering and quality of life: mixed methods evaluation of a randomized controlled trial involving persons with mild to moderate dementia.	Adults: 15 Children: 16 (5-6yrs.)	U.S.A.	1hr. for 5 months	Mixed Methods, RCT	MMSE, Beck Anxiety Inventory, Beck Depression Inventory, sense of purpose and usefulness (single-item questionnaires)	Positive: Stress levels, sense of purpose, usefulness, relief from "sick role", affectionate physical touch Negative: N/A
George, D. & Wagler, G. (2014).	Social learning and innovation: developing two shared-site intergenerational reading programs in Hershey, Pennsylvania.	Adults: 30 Children: 16	U.S.A.	4 days weekly for one hour	Observational	N/A	Positive: Social interaction, cognitive stimulation, QOL. Negative: N/A
George, D.R., & Whitehouse, P.J. (2010).	Intergenerational volunteering and quality of life for persons with mild-to-moderate dementia: results from a 5-month intervention study in the United States.	Adults: 8 Children: NA (5-14yrs)	U.S.A.	Every other week hour long visits x 1 hour for 5 months.	Mixed Methods	N/A	Positive: Enhanced mood, cognition, purposefulness, usefulness, meaningful relationships. Negative: N/A
Gigliotti, C., Morris, M., Smock, S., Jarrott, S. & Graham, B. (2005).	An intergenerational summer program involving persons with dementia and preschool children.	Adults: 14 Children: 10 (2-10yrs.)	U.S.A.	4 days a week x 10 weeks	Qualitative	Interviews, surveys, and evaluation forms.	Positive: Improved relationships, enhanced sense of self and QOL. Negative: Impatience, frustration.
Janke, M., Purnell, I., Watts, C. & Shores, K. (2019).	Associations between engagement types, outcome behaviors, and quality of life for adults with dementia participating in intergenerational programs.	Adults: 15 Children: (2mo.-6yrs).	U.S.A.	5 sessions, 25-75mins. 2xday x 1 week.	Quantitative	Menorah Park Engagement Scale (MPES), Quality of Life in Dementia Scale (QUALID), Brief Interview for Mental Status (BIMS), Patient Health Questionnaire (PHQ9), Spearman's Rho Correlations	Positive: Pleasure, helping behaviors, QOL, productive, purpose, sense of self. Negative: Too frequent participation result in poorer QOL and pleasure.

Low, L., Russell, F., McDonald, R. & Kauffman, A. (2015).	Grandfriends, an intergenerational program for nursing home residents and preschoolers: a randomized trial	Adults: 40 Children: 21 (4yrs.)	Australia	45mins. Weekly for 12 weeks.	Quantitative, RCT	Menorah Park Engagement Scale (MPES), Cohen-Mansfield Agitation Inventory (CMAI), Brief Sense of Community Scale (BSCS), Long Term Care Quality of Life Scale (LTC-QoL), SPSS.	Positive: Engagement, enjoyment. Negative: Refusal to participate, "children should be home with their mothers".
McNair, B.A., & Moore, K.S. (2010).	The effects of intergenerational programs on individuals with Alzheimer's disease or dementia.	Adults: 27 Children: 12 (Pre-K)	U.S.A.	15mins weekly x 6 weeks	Mixed Methods	Comprehensive Evaluation in recreation Therapy-Psych/ Behavioral (CERT) Scale	Positive: Affect, attitude, relationships, conversation, memory. Negative: N/A
Sloane, P., Zimmerman, S. Gruber-Baldini, A. & Barba, B. (2002).	Plants, animals, and children in long-term care: how common are they? Do they affect clinical outcomes?	Adults:3000 Children: N/A	U.S.A.	Weekly x 1 year	Longitudinal, Mixed Methods	Telephone interviews and one-site observations	Positive: N/A Negative: N/A
Skropeta, C.M., Colvin, A. & Sladen, S. (2014).	An evaluative study of the benefits of participating in intergenerational playgroups in aged care for older people.	Adults: 48 Children: 50 (0-4yrs)	Australia	15-30mins. 6 months	Mixed Methods	SF-36, Geriatric Depression Scale (GDS), interviews, SPSS	Positive: Meaningful engagement, dignity, sense of connectedness and friendships, make connections, enjoyment Negative: Fatigue

Sample Size

Sample size for adult members with dementia residing in long-term care varied across the studies, from eight to three thousand participants. Participation size for the toddler to kindergarten-aged children ranged from ten to fifty.

Intervention Timeframe

The articles also differed in terms of timeframe used in which the intervention was conducted. It varied from 15 minutes daily to one hour; and long term, from 1 week to one-year total across the study length.

Design

The majority of the studies indicated use of a mixed-methods approach (inclusion of both qualitative and quantitative data), although only one article discussed statistically significant results with the use of SPSS Software (MacDonald & Kauffman, 2015). Most outcomes were identified solely from observational data, such as surveys, interviews, and audio recordings.

Country of Origin

Aside from those written in English, all articles published globally were considered for this review. Eight articles included

studies in the United States, two in Canada, and two nearby Sydney, Australia.

Positive Outcomes

A majority of the findings from the intergenerational design methods between young children and patients with Alzheimer's dementia appeared to have beneficial outcomes. The three most common themes identified across all studies were improved memory and cognition, relationships, and positive affect.

Feelings of gratification and joy, improved cognitive functioning, meaningful relationships, and overall improvement in psychosocial status were identified by Black (2011) and David et al. (2011). Feelings of purpose, self-esteem, youthfulness, decreased anxiety, positive affect, increased mobility, hand-holding, eye-contact, verbal interaction, and lowered levels of agitation were also identified (Galbraith et al., 2015). George (2011) also found improvement in stress levels, sense of purpose, usefulness, relief from the "sick role", and more displays of affectionate and physical touch among those who participated within the intergenerational groups within the facility. This was the only study which identified a statistical significance between an intervention used within their study. Their main finding showed that individuals with dementia, once exposed to children, showed a decrease in stress levels by 2.5 points on the Beck Anxiety Inventory (BAI), with a significance level of 0.01, $p = < 0.01$(George, 2011).

Improved social interaction, cognitive stimulation, improved quality of life indicators (health and personal safety, intellectual development, understanding, creativity, personal expression, and socializing), enhanced mood, purposefulness, usefulness, and meaningful relationships were common themes identified between studies from George and Wagler (2014) and George and Whitehouse (2010). The remaining studies all showed common themes following intergenerational interactions including: improved relationships, sense of self, quality of life, pleasure, productivity, purposeful engagement, enjoyment, positive affect and attitude, conversation, memory, dignity, and sense of connectedness (Gigliotti et al., 2005; Janke et al., 2019; Low et al., 2015; McNair & Moore, 2010; Skropeta et al., 2014). One article identified no positive results following the intervention (Sloane et al., 2002).

Negative outcomes

Although a majority of the adult-child interaction playgroups did elicit positive responses, several studies identified negative outcomes following their intervention (Black, 2011; Galbraith et al., 2015; Gigliotti et al., 2005; Janke et al., 2019; Low et al., 2015; Skropeta et al., 2014). The common themes present across the articles included feelings of fatigue, frustration, and an unwillingness to participate for unidentified reasons.

In one study, the adults described interactions with children as tiring, with several choosing not to participate (Black, 2011). Distress was also discovered among more structured activities, as well as less verbal interaction, as identified by Galbraith et al. (2015). When interviewed, participants also described feelings of frustration and impatience (Gigliotti et al., 2005). One study identified that too frequent participation in the program involving young children resulted in poor quality of life outcomes, as evidenced by lower activity of daily living indicator scores measuring perceived health and personal safety, intellectual development, understanding, creativity, personal expression, and socializing and lower levels of pleasure (Janke et al., 2019). Low et al. (2015) also found many adults unwilling to participate in the intergenerational program, with one adult with dementia even mentioning that "children should be at home with their mothers." Skropeta et al. (2014) mentioned periods of frustration within the intervention group.

Discussion

The aim of this study was to identify the effect of intergenerational programs on patients with Alzheimer's dementia residing in long-term nursing homes. Summary of the evidence leads to an overwhelming positive response to intergenerational programs for beneficial outcomes of those affected with dementia. A review of the literature identified that repeated exposure to elementary age children and younger resulted in improved relationships, positive affect, and improved memory and cognition among the elderly participants.

In reviewing the negative outcomes that were identified, frustration, fatigue, and uncooperative behavior were noted among a few of the participants. These outcomes may have been resolved by choosing appropriate times for the residents in which they were most awake (daytime), choosing more relaxing activities (cradling infants, singing, or listening to music), or shortening the length of some of the toddler-adult interaction groups from an hour to fifteen minutes, with greater frequency throughout the week. Alterations to these interventions may have resulted in different outcomes for several of these studies, making these groups more tolerable for many of the older individuals, more greatly affected by their diagnosis of Alzheimer's dementia.

Limitations

There appeared to be an inadequate sample representation size to account for any significant findings within any of the studies to achieve an adequate statistical significance. Although one article did include a sample size of 3,000 adults living in long-term care, this sample was also spread out for a research question seeking to answer effects of plants, animals, and children on those living in long-term care, with few participants subject to children exposure and interaction (Sloane et al., 2002). This study was also over ten years old, and resulted in no effects after exposure to children due to inadequate level of interaction.

A majority of the studies conducted were performed in the United States and Canada, although as previously mentioned, the studies from other countries appeared to be less rigorous with regards to their summary of the evidence and their data collection process. More studies conducted within the United States and Canada discussing this particular intervention would help to support the findings for this specific intervention among those with dementia living in long-term care facilities.

The measurement tools and designs varied across studies. Majority of the studies discussed a mixed-methods approach rather than a qualitative design, although after compiling data,

there was quantitative evidence collected which proved to be statistically significant. The majority of articles based their findings solely on lower level qualitative evidence collected from surveys, interviews, and video recordings of those exposed to the intergenerational programs. In the future, more statistically significant quantitative data would need to be collected to fully support the role of intergenerational programs on impacting the depression, anxiety, and overall quality of life scores among those with dementia residing in long term care facilities.

Risk of Bias

Several areas may prove to be a source of bias within this literature. There was an overwhelming response to positive outcomes as opposed to negative outcomes following exposure to intergenerational studies. Stress was identified as the only statistically significant finding among the mixed-methods articles identified across all twelve studies (George, 2011). The majority of the evidence was a result of qualitative data collected from patients with Alzheimer's (who may be unreliable historians at times) or from decision makers, staff members, or family members, who indirectly play an influence on perceived notions of benefits or consequences as a result of these interventions.

Summary of Gaps

In order to consider the results of the review more relevant, use of the Cornell Scale for Depression (Alexopoulos et al., 1988) is an appropriate tool which could be applied to assess individuals with advanced Alzheimer's Dementia. There were also several inconsistences across studies, which failed to mention significant data which should be pertinent and useful in applying their findings to future research. Nearly half of the articles failed to discuss a measurement tool used within their study, while one article (Sloane et al., 2002) did not identify any effect, positive or negative, as a result of interaction with children on a routine, scheduled program.

Conclusion

As healthcare continues to advance, and people continue to live longer, a growing concern is the increasing prevalence of Alzheimer's dementia among the aging population. It is inevitable that this disease will continue to become more prevalent, with a greater financial and emotional burden as numbers continue to rise. This diagnosis comes with a risk for increased cognitive and physical decline, but also greater occurrences of falls, polypharmacy complications, emergency departments visits, mental illness admissions, and end of life support services. Continued research among this population to include novel methodologies to prevent many of these fatal comorbities is critically indicated.

The emerging trend appears to be a departure away from traditional pharmacotherapeutic measures towards cognitive and behavioral strategies as more influential, relevant, and cost-effective approaches. More research involving randomized controlled trials, significant sample sizes and conducted in multi-site settings, will provide important evidence for our healthcare system to veer from the traditional, westernized, fee-for-service model, and more towards value-based healthcare, with an emphasis on safe, quality, and positive outcomes for all.

References

Alexopoulos, G.S., Abrams, R.C., Young, R.C. & Shamoian, C.A. (1988). Cornell scale for depression in dementia. *Biological Psychiatry, 23(3)*, 271-284. https://doi.org/10.1016/0006-3223(88)90038-8

Alzheimer's Association. (2021, July 1). *Alzheimer's and dementia: Facts and figures.* https://www.alz.org/alzheimers-dementia/facts-figures

American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, 5th ed. (DSM-V)*, American Psychiatric Association.

Black, K. (2011). Combining the young and young at heart: Innovative, intergenerational programming throughout the continuum of long-term care. *Journal of Intergenerational Relationships, 9*(4), 458-461. https://doi.org/10.1080/15350770.2011.619407

David, J., Yeung, M., Vu, J., Got, T. & Mackinnon, C. (2018). Connecting the young and the young at heart: an intergenerational music program. *Journal of Intergenerational Relationships, 16*(3), 330-338. https://doi.org/10.1080/15350770.2018.1477436

Galbraith, B., Larkin, H., Moorhouse, A. & Oomen, T. (2015). Intergenerational programs for persons with dementia: A scoping review. *Journal of Gerontological Social Work, 58*(4), 357-378. https://doi.org/10.1080/01634372.2015.1008166

George, D. R. (2011). Intergenerational volunteering and quality of life: Mixed methods evaluation of a randomized control trial involving persons with mild to moderate dementia. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care, & Rehabilitation, 20*(7), 987-995. https://doi.org/10.1007/s11136-010-9837-8

George, D.R., & Wagler, G. (2014). Social learning and innovation: Developing two shared-site intergenerational reading programs in Hershey, Pennsylvania. *Journal of Intergenerational Relationships, 12(1)*, 69-74. http://dx.doi.org/10.1080/15350770.2014.869106

George, D.R., Whitehouse, P.J. (2010). Intergenerational volunteering and quality of life for persons with mild-to-moderate dementia: Results from a five-month intervention study in the United State. *Journal of the American Geriatrics Society, 58*(4), 796-797. https://doi.org/10.1111/j.1532-5415.2010.02790.x

Gigliotti, C., Morris, M. & Smock, S. (2005). An intergenerational summer program involving persons with dementia and preschool children. *Educational Gerontology, 31*(6), 425-441. https://doi.org/10.1080/03601270590928161

Janke, M.C., Purnell, I., Watts, C. & Shores, K. (2019). Associations between engagement types, outcome behaviors, and quality of life for adults with dementia participating in intergenerational programs. *Therapeutic Recreation Journal, 53*(2), 132-148. https://doi.org/10.18666/TRJ-2019-V53-I2-9647

Larson, E. B. (2021). Evaluation of cognitive impairment and dementia. UpToDate. Retrieved July 1, 2021 from https://www.uptodate.com/contents/evaluation-of-cognitive-impairment-and-dementia

Lin,Y., Dai, Y., Huang, L., Wang, S., & Huang, G. (2017). Creative approach for successful aging: A pilot study of an intergenerational health promotion program. *Geriatric Gerontology International,* 17, 1799-1807. https://doi.org/10.1111/ggi.12963

Low, L., Russel, F., McDonald, T. & Kauffman, A. (2015). Grandfriends, an intergenerational program for nursing-home residents and preschoolers: A randomized trial. *Journal of Intergenerational Relationships, 13*(3), 227-240. http://doi.org/10.1080/15350770.2015.1067130

Mazurek-Melnyk, B., & Fineout-Overholt, E. (2005). Rapid critical appraisal of randomized controlled trials (RCTs): An essential skill for evidence-based practice (EBP). *Pediatric Nursing, 31*(1), 1-5.

McNair, B.A., & Moore, K.S. (2010). The effects of intergenerational programs on individuals with Alzheimer's disease or dementia. *Annual in Therapeutic Recreation, 18,* 141-156.

Page, M. J., Moher, D., Bossuyt, P.M., Boutron, I., Hoffman, T.C., Mulrow, C.D., Shamseer, L., Tetzlaff, J.M., Akl, E.A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J.M., Hrobjartsson, A., Lalu, M.M., Li, T., Loder, E.W., Mayo-Wilson, E., McDonald, S., … McKenzie, J.E. (2020). PRISMA 2020 explanation and elaboration: updated guidance and exemplars for reporting systematic reviews. *British Medical Journal,* Retrieved from https://journals.lww.com/epidem/Fulltext/2011/01000/PRISMA_Statement.22.aspx

Sloane, P.D., Zimmerman, S., Gruber-Baldini, A.L. & Barba, B.E. (2002). Plants, animals, and children in long-term care: how common are they? Do they affect clinical outcomes? *Alzheimer's Care Quarterly, 3*(1), 12-18.

Skropeta, C.M., Colvin, A. & Sladen, S. (2014). An evaluative study of the benefits of participating in intergenerational playgroups in aged care for older people, *BMC Geriatrics, 14*(1), 11. https://doi.org/10.1186/1471-2318-14-109