

2016

Depression in Older Adults in Nursing Homes: A Review of the Literature

Isabella McCarthy-Zelaya
Portland State University

Follow this and additional works at: <https://pdxscholar.library.pdx.edu/honorsthesis>

Let us know how access to this document benefits you.

Recommended Citation

McCarthy-Zelaya, Isabella, "Depression in Older Adults in Nursing Homes: A Review of the Literature" (2016). *University Honors Theses*. Paper 266.
<https://doi.org/10.15760/honors.259>

This Thesis is brought to you for free and open access. It has been accepted for inclusion in University Honors Theses by an authorized administrator of PDXScholar. Please contact us if we can make this document more accessible: pdxscholar@pdx.edu.

Depression in Older Adults in Nursing Homes: A Review of the Literature

by

Isabella McCarthy-Zelaya

An undergraduate honors thesis submitted in partial fulfillment of the

requirements for the degree of

Bachelor of Science

in

University Honors

and

Psychology

Thesis Adviser

Dr. Diana White

Portland State University

2016

Abstract

The rates of depression are high in nursing homes and often is not treated. A systematic literature review was conducted searching for research studies on depression interventions in nursing homes. Nineteen studies met selection criteria, which included being published in a peer-reviewed journal, being set in a nursing home and utilizing an experimental design. The sample sizes of the studies ranged from 21 participants to as many as 595; the lengths of the studies varied as well from 4 weeks to 24 weeks, with six studies also including follow-ups up to one year post-intervention. Studies showed that interventions involving reminiscing on meaning of life, music and dance therapy, increasing pleasant events in the nursing home, and demonstrating goal-oriented problem-solving strategies significantly improved depressive symptoms in older adults in nursing homes. In many cases, depressive symptoms improved even in control groups due to increased social contact from researchers; depressive symptoms decreased significantly when social contact was highly individualized. Interventions involving cognitive stimulation therapy, exercise therapy and interventions involving reminiscence on personal life did not improve depressive symptoms. Depressive symptoms were measured using a version of the Geriatric Depression Scale in most of the studies. The remaining studies used the Cornell Scale for Depression in Dementia, the Hamilton Rating Scale for Depression, or the Montgomery-Asberg Depression Rating Scale. Review findings suggest that multiple interventions can be used successfully to more adequately care for depressed older adults. Discussion will include integrating pieces of these effective interventions into nursing home.

Introduction

Over one million Americans currently reside in nursing homes (U.S Census Bureau, 2010). This number can only be expected to increase as the older adult population—people aged 65 years and older—is projected to increase over the next 20-40 years. Advancements in healthcare are keeping people alive longer, and the large baby boomer population is now reaching old age, increasing the proportion of older adults even more (Jeste DV, Alexopoulos GS, Bartels SJ, & et al., 1999).

The lifestyle of older adults differs from adults in younger stages of life. For example, older adults are more likely to experience more loneliness (Luhman & Hawkey, 2016), experience a harmful fall and have a fear of falling (Howland et al., 1998). Older adults are also less expectant of finding purpose in life as they age, thus they will even stop seeking out new sources of purpose. Lacking a sense of purpose is correlated with feelings of hopelessness and symptoms of depression. Having a sense of purpose can be as simple as having goals and sense of direction in life, and feeling needed and paid attention to by others (Pinquart, 2002).

Major depression affects an estimated 1 to 4% of the older adult population (Alexopoulos, 2005); however, major depression affects older adults living in nursing homes disproportionately. An estimated 20.3% of older adults in nursing homes are affected by major depression. The rate is likely even higher when subsyndromal depression is factored in. Subsyndromal depression is when depression symptoms are present, yet the symptoms are not severe or numerous enough to be considered major or even minor depression. Even though the rate is so high, depression is still incredibly under-recognized in nursing homes leaving many older adults untreated. For older adults in nursing homes, depression is not a normal part of life and is very treatable. The treatment of depression is a serious topic, as it does not only mean personal suffering but can also contribute to the promotion of disability, a worsened outcome of diseases, and decreased

cognitive and social functioning, which are all associated with increased mortality (Jones, Marcantonio & Rabinowitz, 2003).

Many theories on combating depression without the use of medication exist. Jongenelis et al. suggests receiving “instruction on body-mind relations, relaxation techniques, cognitive restructuring, problem solving, communication, and behavioral management of insomnia, nutrition, and exercise” can reduce symptoms of depression.

One theory of combating depression in older adults is the behavioral activity therapy (Meeks and Depp, 2002). This therapy could reduce depression symptoms through the implementation of pleasant events in the nursing home. This looks like assessing events that are found to be pleasant to older adults and then implementing these activities. This is based on the theory that positive reinforcement for older adults in nursing homes does not exist. Because their environments have been so disrupted in transitioning to nursing home life, depression symptoms occur. As such, integrating events that these older adults rate as pleasant events could be an effective way of lowering depression symptoms.

Reminiscence therapies are another common intervention for depression in older adults. The theory of integrative reminiscence therapy is based in the hypothesis that negative thoughts about the self, the world and the future that are not true are contributing to depression; and so, by older adults directly dealing with these negative thoughts, incorrect causal attributions can be disconfirmed (Walt & Capliez, 2000). Instrumental reminiscence therapy is grounded in a somewhat different theory: the assumption that depression symptoms arise from an inability to cope with stressors in the environment, and suggests that by calling upon memories of past coping strategies, these strategies can subsequently be used to better deal with stressors in the current environment.

It is also theorized that music therapy is helpful in reducing depression symptoms by using goal-directed and evidence-based practices (Hanser & Thompson, 1994). Music therapies fall into two groups, active and receptive therapy. Receptive music therapy uses the psychological, emotional and physiological effects of music to treat illness. Active music therapy uses learning how to play instruments (Guètin et al, 2009). Exercise interventions are also thought to reduce depression symptoms. Exercise activity is correlated with improved moods and cognitive function (Blumenthal et al., 1999), along with inactivity being correlated with depression and anxiety symptoms (Ströhle, 2008).

Cognitive stimulation therapy (CST) is commonly used as preventative measure against dementia in older adults. Apostolo et al., (2014) theorize that the skills learned in CST that promote the capacity for self-care will also aid in combating depression symptoms by the subsequent increase in an older adult's ability for self-care. Pet therapy has historically played a positive role in physical and psychological rehabilitation (Moretti et al., 2010). Depression in older adults has been shown to be very affective in nature, thus it is theorized that pet therapy can be helpful in reducing depression symptoms in older adults.

The aim of the following literature review is to further investigate interventions for depression in older adults in nursing homes, in search of patterns that may arise. The interventions will be investigated via studies that were experimentally designed.

Methods

Search Strategy

To find relevant articles, the keywords and phrases used for search were 'depression treatment', 'aging' and 'nursing home'. These key words and phrases were searched in various databases and journals; these included Google Scholar, PsychInfo, AgeLine, MedLine, *The*

Journal of Gerontology, The Gerontologist and *Aging and Mental Health*. Additional sources were discovered through viewing bibliographies of studies already found.

Criteria for Inclusion and Exclusion

To be included, an intervention had to take place in a nursing home and use experimental or quasi-experimental methodologies. The study also required to be published in peer-reviewed journal articles. Dissertations, books, and papers that could not be accessed through the Portland State University Library were all excluded from the review.

Data Compilation

An evidence table was constructed to facilitate comparisons across the studies. Elements of interest included the type and description of the intervention, how the study was designed, sample size, study length, if there was a follow-up measurement, the outcomes of the study and what measures and statistical analyses were used.

Data

The literature search resulted in eighteen studies of depression interventions in nursing homes. The sample sizes of the studies ranged in size from 21 participants to as many as 793. The studies also varied greatly in length of interventions; some interventions were studied for as little four weeks, while others were as extensive 12-17 months. Six studies also had follow-up check-ins six months post-test.

All the interventions in the articles were studied using an experimental design, and all used statistical analyses of the changes in measure scores to assess the efficacy of the interventions. Ten of the eighteen studies used T-Test for statistical significance, one studied used Pearson's r , and the remaining studies used ANOVA or ANCOVA.

Study	Design	Intervention Type	Sample Size	Study Length	Follow Up	Intervention Description	Outcome		Measures of Depression	Statistical Analysis
							Experimental	Control		
¹ Meeks et al. (2008)	Randomized Control Trial	Behavioral Activity Intervention (psychosocial)	82	10 weeks	Yes; 3-month and 6-month	Weekly meetings with MHT, and staff intervention (activities department), and increase in pleasant events	More likely to be remitted at end of trial (45.2% vs 15.0%). at 3-month more likely to be improved/remitted. Effects no longer seen at 6-month.	Often improved but not remitted	MMSE, GDS, SCID-IV	T-test, Chi Square
² Teri et al. (1997)	Randomized Control Trial	Behavioral Activity Intervention	88	9 weeks	Yes; 6-month	Two treatments: patient pleasant events and caregiver problem solving along with behavior therapy	Significant improvement in depression scores in both treatment groups. Most improvement in PS group	Some members of the control groups saw improvement in depression scores	HDRS, CSDD	MANOVA
³ Gellis et al. (2014)	Randomized Control Trial	Telehealth Education and Activation of Mood (I-TEAM)	102	8 weeks	Yes. 3, 6, & 12-month	Telehealth nurse providing problem solving treatment for depression.	I-TEAM mean HAM-D, PHQ-9 scores fell by half at 3-months	Slight decrease in scores at 3-month, slight increase in following 3-month	HAM-D, PHQ-9,	T-test
⁴ Szczepanska, Kowalska, Pawik, & Rymaszewska (2014)	Randomized Control Trial	Group Psychotherapy	28	4 weeks	No	goal-focused group psychotherapy was used; building social connections, focus on things in life that can be changed, focus directed onto the future	All members of treatment group no longer had severe depression symptoms	Some reduction in depression symptoms	GDS-15	T-test
⁵ Hyer et al. (2008)	Stepped-wedge, Randomized Control Trial	Cognitive Behavioral Therapy	25	15 weeks	No.	Group, individual and staff therapy (GIST). 15 sessions. Group sessions are focused on goal-setting and attainment with social support	Depression scores reduced by more than 50%	Depression scores increased	GDS-5	T-test
⁶ Underwood et al. (2013)	Cluster Randomized Control Trial	Exercise Therapy	595	12 months	No	twice-weekly physiotherapist-led 45 min exercise sessions	No significant changes in GDS scores	No significant changes in GDS scores	GDS-15	T-test
⁷ Vankova et al. (2014)	Randomized Control Trial	Dance Therapy	162	3 months	No.	Exercise dance for seniors for 60min/week	Significant improvement in depression scores	Non-significant worsening of depression scores	GDS	T-test
⁸ Williams and Tappen. (2008)	Random, 3-group, repeated measure design	Exercise Therapy	45	16 weeks		program of three groups: exercise, supervised walking, social conversation	More improvements in exercise patients than control patients	Social conversation group improved slightly	CSDD	T-test
⁹ Chueh and Chang (2014)	Quasi-Experimental	Reminiscence Therapy	22	2-weekly sessions for 4 weeks	Yes; 3 & 6-month	Group reminiscence therapy.	Mean GDS score decreased by 7 points post-test. Increased by ~2 points every 3-months post-test	Mean GDS score increased over 6-month period	Taiwan GDS	T-test
¹⁰ Melendez et al. (2013)	3 group, pre-post test experimental design	Reminiscence Therapy	34	6 weeks	Yes. 3-month	Group reminiscence therapy	All groups showed improvement, integrative treatment group showing most improvement.	Control group showed some improvements	GDS-15	ANCOVA
¹¹ Karimi et al. (2010)	Randomized, pre-post test design	Reminiscence	29	6 weeks	No	3-groups: instrumental reminiscence (discussion of past experiences to solve present problems), active discussion (placebo) control group	Integrative reminiscence intervention provided significant decrease in depression scores	Integrative and placebo groups did not have significant changes in depression scores	GDS-15	ANCOVA
¹² Stinson and Kirk (2006)	Two-group comparison of Treatment vs. Activity Group	Reminiscence Therapy	24	6 weeks	No	Group reminiscence on depression and self-transcendence. Twice weekly 60-min sessions.	No significant changes in depression scores	No significant changes in depression scores	GDS	Pearson's r.
¹³ Tsai et al.	Quasi-	Self-worth	63	4 weeks	Yes; 2-	All participants met with a	Statistically significant decrease	Statistically significant decrease	GDS	T-test

(2008)	experimental	Therapy			month	research 1day/week. Only experimental group received self-worth therapy. Involved teaching strategies for managing depression and dignity therapy	in depressive symptoms. More than control group at 2 months	in depressive symptoms. Less than experimental at 2 months		
¹⁴ Buettener and Fitzsimmons (2002)	Randomized Control Trial	One-to-one bicycle/wheelchair therapy	70	10 weeks	No	Small group therapy and bicycle rides. (individualized social contact)	Significant decrease in depression scores (almost 50%)	Slight increase in depression scores	GDS	T-test
¹⁵ McCurren et al. (1999)	Randomized Control Trial	Trained geropsychiatric Nurse + trained volunteer contact	85	24 weeks	No.	Twice weekly visits of volunteers, and weekly visit from nurse. Study of efficacy of individualized social support interventions.	Significant improvement. "quality not frequency"	No change measured	GDS, MMSE	ANOVA, ANCOVA
¹⁶ Werner, Wosch and Gold (2015)	Randomized Intervention Trial	Group music therapy vs. group singing	117	12 weeks	No.	Groups were assigned to either music therapy or group singing	Music Therapy Group had a significant decrease in depression scores. (more decrease in dementia patients)	Group Singing increased depression scores significantly	MADRS	T-test
¹⁷ Apostolo, Cardoso, Rosa, Paul (2014)	Randomized Control Trial	Cognitive Stimulation Therapy	56	7 weeks	No	Intervention was 14 CST sessions in groups of six to eight older adults	No significant changes in depression scores	No significant changes in depression scores	GDS-15	ANOVA
¹⁸ Moretti et al. (2011)	Pre-post Control, Experimental Design	Pet Therapy	21	6 weeks	No.	90-min, once a week of pet interaction for intervention group. Control group only viewed the pets	Mean depression scores decreased by half.	Some improvement. 2-pointing decrease in scores	MMSE, GDS	T-test

Results

Interventions

The most common intervention applied in the nursing home trials was reminiscence therapy; this was seen in five studies (Chueh & Chang, 2014; Mendelez et al., 2013; Karimi et al., 2010; Stinson & Kirk, 2006; Tsai et al., 2008). Reminiscence therapies can vary in how they are implemented. The reminiscence therapies seen in this review were instrumental and integrative reminiscence therapies. Integrative reminiscence is a group intervention involving reflection on the continuity and meaning of life along with disconfirmation of negative self-worth and renewing sources of self-worth. Instrumental reminiscence therapy involves reflecting on past experiences and using those experiences to solve current problems.

Following reminiscence therapy, the next most common intervention was exercise therapy; this was seen in three studies (Underwood et al, 2013; Vankova et al. 2014; Williams & Tappen, 2008). The exercise interventions varied and included dance, walking or organized exercise therapy. Three studies utilized interventions that taught goal-oriented, problem-solving strategies to depressed older adults (Gellis et al., 2014; Szczepanska, Kowalska, Pawik, & Rymaszewska, 2014; Hyer et al., 2008). This group intervention encouraged social connections between group members to provide support to each other while working through problems, while providing techniques for problem solving that focused on future goals.

Two studies focused on increasing pleasant events in nursing homes; these pleasant events were activities that were shown to be enjoyed by older adults (Meeks et al., 2008; Teri et al., 1997). Two studies focused on the effects individualized social interactions with older adults, either by spending one-on-one time with the older adult participating in an activity or in conversation (Buettener & Fitzsimmons, 2002; McCurren et al., 1999).

The remaining studies focused on a type of intervention not reported in other studies. One study employed cognitive stimulation therapy—a group intervention that aims to advance cognitive and social functioning through number and word games (Apostolo, Cardoso, Rosa & Paul, 2014). One study used a pet therapy intervention (Moretti et al., 2011), and one study used a music therapy intervention (Werner, Wosch & Gold, 2015).

Measures

The Geriatric Depression Scale (GDS) is an extensively used instrument for assessing depression symptoms in older adults. The long-form GDS is a 30-item measure consisting of yes-or-no answer questions. The GDS-15 is a shorter version consisting of the most relevant items for assessment of depression symptoms. This scale was used in 15 of the 19 studies; six of these studies employed the short form, the remaining studies employed the long form (Yesevage et al., 1982).

The Hamilton Rating Scale for Depression (HAM-D) is a questionnaire administered by a healthcare professional to assess depression symptoms. The questionnaire contains 21 items with answers on scale of either 0-2 or 0-4; 0 being the absence of a symptom, and 4 being a very severe symptom. This measure was used in three studies (Yesevage et al., 1982).

The Cornell Scale for Depression in Dementia (CSDD) measures depression via two interviews: one with the older adult, and the other with an informant who knows the older adult well. The items in the interviews are rated on scale from 0-2. A score of above 10 indicates probable major depression. This measure was used in two studies (Alexopoulos, 2005).

The Montgomery-Åsberg Depression Rating Scale (MADRS) is a questionnaire that rates ten symptoms of depression on scale of 0-6. This measure is used upon the diagnosis of

depression to measure the severity of the symptoms and depression episodes, and was only used in one study (Muller, 2003).

Outcomes of Interventions

Reminiscence therapy was shown to be effective in some cases. The instrumental reminiscence interventions were not effective across three studies, according to GDS and CSDD scores. Integrative studies, however, were effective across two studies according to GDS scores. Only one of the exercise therapy interventions, exercise dance therapy, produced significant improvements as measured by GDS or CSDD. Three studies opted for teaching problem-solving techniques. These interventions were successful in all three trials according to GDS and HAM-D scores.

Two more studies tested interventions involving increasing pleasant events in the nursing home, which decreased depression symptoms according to GDS and CSDD measures. Two studies with highly individualized social interaction interventions showed significantly reduced GDS scores. In one study, cognitive stimulation therapy was shown to be ineffective at reducing depression symptoms, and in one other study, pet therapy was shown to be effective in reducing depression symptoms according to GDS scores. The control groups of eight studies also demonstrated some improvement in depression symptoms.

Group-style interventions that were successful were those that used the group for social connections and support. One-on-one style interventions that were successful were those that made the personal interactions highly individualized. Although many of the studies did not include follow-up measures, those that did all demonstrated that within six months post-test, the positive effects of the interventions were no longer seen.

Discussion

Themes in the literature

All of the interventions in the reviewed studies fell into one of two categories: group-style and individualized-style interventions. Both of these intervention types were shown to have positive effects on depression symptoms. In the successful interventions that used group-type interventions, the groups were connected socially and used these social connections for support. However, group effects alone were not enough to improve depression symptoms--the interventions themselves were also necessary for the improvement. This is seen in the control groups of these interventions; even though the group effects were present, it was not enough to reduce depression symptoms significantly.

A similar trend is seen in the studies using one-on-one type interventions. The successful interventions were those that made interactions highly individualized, and catered to fit the needs of each individual older adult. This was seen in interventions such as music therapy and the individualized social interaction intervention.

Interventions with a focus on setting goals were effective. The use of goals is an effective way to keep focus on the future. Teaching new skills allows for goal-setting and provides older adults the opportunity to focus on the future. This can explain why Exercise Dance Therapy (EXDASE) was an effective intervention where the other exercise interventions were not. EXDASE taught the skill of dance to the older adults in addition to being an exercise intervention.

Differences in the frequency of an intervention did not appear to be a factor in these studies. Essentially, the interventions did not need to take place daily for effects on depression to take place. With the exception of one study in which the intervention took place four times per week, the successful interventions occurred no more than twice a week. However, continuity

appeared to play an important role. In the studies that did have a follow-up measurement, by six-months post-test, the progress made from the interventions could no longer be seen. So, it is important that interventions are lasting, not just temporary.

Implications for practice

Any of the interventions that were found to be effective could be potentially integrated into a nursing home. The key implications are that effective interventions occurred once to twice a week, and the more time that passed after the intervention, the less the positive effects are seen. Therefore, when integrating an intervention, the intervention does not need to take place daily to have a positive effect on depression symptoms. However, since the effects interventions have been shown to lessen after the intervention period ends, the intervention being on-going is important.

Implications for Research

Based on the themes that were identified in the literature review, some suggestions can be made for further research: would an intervention that integrated the common themes identified in successful the interventions be the most helpful in combating nursing home depression? Pinquart (2002) suggested that a person's sense of purpose in life lies in having goals and a direction in life, as well as feeling wanted and needed by others. The common themes identified by the effective interventions all supported one of these factors of a sense of purpose. The interventions that were highly individualized—the intervention with volunteers that have individual interactions with the older adults, and the intervention with the wheelchair-bicycle—allowed the older adults to feel wanted by others. The interventions that encouraged group interaction and social support, like the integrative reminiscence and problem-solving interventions allowed the older adults to feel needed by others. The interventions that taught

skills or encouraged goal-setting, like EXDASE and goal-setting interventions, allowed the older adults to have a direction in life. This would suggest that depression symptoms could be best combated by an intervention that encourages providing older adults in nursing homes with a sense of purpose.

An example of this could be giving older adults in nursing homes weekly group sewing lessons and teaching them how to make hats or scarves that could then be given to homeless people in need. Through the process of learning the skill, the participants would have goals they are trying to reach which would aid in having a sense direction. The fact the products would be used for people in need would aid in feeling needed by others. The group setting would be encouraging for the older adults to have social interaction to help and support each other in learning the skill.

Biases

Although the data has provided strong evidence for the efficacy of some of these interventions, a bias in the literature exists that may be hindering the accuracy of the results. This is due to the fact that often studies that do not have significant findings will not publish the data. This could mean that there has been research done disproving the efficacy of the interventions here that has not been published. Another source of missing information could be that the limited resources of the Portland State University library limited the collection of data.

Conclusion

This literature review demonstrated that there are effective interventions for depression in older adults in nursing homes, and that there are solutions to combating the issue of the high rates of depression seen in nursing homes as long as the interventions are on-going after implementation. Relationships were also drawn between the need for a sense of purpose in life

and depression that suggest that if older adults can find a sense of purpose in their lives, depression could be reduced.

Bibliography

Alexopoulos, G. S. (2005). Depression in the elderly. *The Lancet*, 365(9475), 1961-1970. doi:10.1016/s0140-6736(05)66665-2

Alexopoulos, G. S., M.D. (n.d.). The Cornell Scale for Depression in Dementia. Retrieved from [http://www.scalesandmeasures.net/files/files/The Cornell Scale for Depression in Dementia.pdf](http://www.scalesandmeasures.net/files/files/The%20Cornell%20Scale%20for%20Depression%20in%20Dementia.pdf)

Apóstolo, J. L., Cardoso, D. F., Rosa, A. I., & Paúl, C. (2014). The Effect of Cognitive Stimulation on Nursing Home Elders: A Randomized Controlled Trial. *Journal of Nursing Scholarship*, 46(3), 157-166. doi:10.1111/jnu.12072

Blumenthal, J. A., Babyak, M. A., Moore, K. A., Craighead, W. E., Herman, S., Khatri, P., . . . Krishnan, K. R. (1999). Effects of Exercise Training on Older Patients With Major Depression. *Arch Intern Med Archives of Internal Medicine*, 159(19). doi:10.1001/archinte.159.19.2349

Buettner, L. L. (2002). AD-venture program: Therapeutic biking for the treatment of depression in long-term care residents with dementia. *American Journal of Alzheimer's Disease and Other Dementias*, 17(2), 121-127. doi:10.1177/153331750201700205

Chueh, K., & Chang, T. (2013). Effectiveness of group reminiscence therapy for depressive symptoms in male veterans: 6-month follow-up. *Int J Geriatr Psychiatry International Journal of Geriatric Psychiatry*, 29(4), 377-383. doi:10.1002/gps.4013

Doyne, E. J., Chambless, D. L., & Beutler, L. E. (1983). Aerobic exercise as a treatment for depression in women. *Behavior Therapy*, 14(3), 434-440. doi:10.1016/s0005-7894(83)80106-3

Fiske, A., Wetherell, J. L., & Gatz, M. (2009). Depression in Older Adults. *Annual Review of Clinical Psychology Annu. Rev. Clin. Psychol.*, 5(1), 363-389. doi:10.1146/annurev.clinpsy.032408.153621

Gellis, Z. D., Kenaley, B. L., & Have, T. T. (2014). Integrated Telehealth Care for Chronic Illness and Depression in Geriatric Home Care Patients: The Integrated Telehealth Education and Activation of Mood (I-TEAM) Study. *Journal of the American Geriatrics Society J Am Geriatr Soc*, 62(5), 889-895. doi:10.1111/jgs.12776

Guètin, S., Portet, F., Picot, M., Pommieacute;, C., Messaoudi, M., Djabelkir, L., . . . Touchon, J. (2009). Effect of Music Therapy on Anxiety and Depression in Patients with Alzheimer's Type Dementia: Randomised, Controlled Study. *Dementia and Geriatric Cognitive Disorders Dement Geriatr Cogn Disord*, 28(1), 36-46. doi:10.1159/000229024

Hanser, S. B., & Thompson, L. W. (1994). Effects of a Music Therapy Strategy on Depressed Older Adults. *Journal of Gerontology*, 49(6). doi:10.1093/geronj/49.6.p265

Howland, J., Lachman, M. E., Peterson, E. W., Cote, J., Kasten, L., & Jette, A. (1998). Covariates of Fear of Falling and Associated Activity Curtailment. *The Gerontologist*, 38(5), 549-555. doi:10.1093/geront/38.5.549

Hyer, L., Yeager, C. A., Hilton, N., & Sacks, A. (2008). Group, Individual, and Staff Therapy: An Efficient and Effective Cognitive Behavioral Therapy in Long-Term Care. *American Journal of Alzheimer's Disease and Other Dementias*, 23(6), 528-539. doi:10.1177/1533317508323571

Jones, R. N., Marcantonio, E. R., & Rabinowitz, T. (2003). Prevalence and Correlates of Recognized Depression in U.S. Nursing Homes. *Journal of the American Geriatrics Society*, 51(10), 1404-1409. doi:10.1046/j.1532-5415.2003.51458.x

Jongenelis, K., Pot, A., Eisses, A., Beekman, A., Kluiters, H., & Ribbe, M. (2004). Prevalence and risk indicators of depression in elderly nursing home patients: The AGED study. *Journal of Affective Disorders*, 83(2-3), 135-142. doi:10.1016/j.jad.2004.06.001

Karimi, H., Dolatshahee, B., Momeni, K., Khodabakhshi, A., Rezaei, M., & Kamrani, A. (2010). Effectiveness of integrative and instrumental reminiscence therapies on depression symptoms reduction in institutionalized older adults: An empirical study. *Aging & Mental Health*, 14(7), 881-887. doi:10.1080/13607861003801037

Logsdon, R. G., & Teri, L. (1997). The Pleasant Events Schedule-AD: Psychometric Properties and Relationship to Depression and Cognition in Alzheimer's Disease Patients. *The Gerontologist*, 37(1), 40-45. doi:10.1093/geront/37.1.40

Luhmann, M., & Hawkley, L. C. (2016). Age Differences in Loneliness From Late Adolescence to Oldest Old Age. *Developmental Psychology*. doi:10.1037/dev0000117

Mccurren, C., Dowe, D., Rattle, D., & Looney, S. (1999). Depression among nursing home elders: Testing an intervention strategy. *Applied Nursing Research*, 12(4), 185-195. doi:10.1016/s0897-1897(99)80249-3

Meeks, S., Haitsma, K. V., Schoenbachler, B., & Looney, S. W. (2014). BE-ACTIV for Depression in Nursing Homes: Primary Outcomes of a Randomized Clinical Trial. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 70(1), 13-23. doi:10.1093/geronb/gbu026

Meeks, S., & Depp, C. A. (2003). Pleasant Events-Based Behavioral Intervention for Depression in Nursing Home Residents. *Clinical Gerontologist*, 25(1-2), 125-148. doi:10.1300/j018v25n01_07

Mendez-Moral, J. C., Charco Ruiz, L., Mayordomo-Rodriguez, T., & Salez-Galan, A. (may 2013). Effects of a reminiscence program among institutionalized elderly adults. *Psicothema*, 25(3), 319-323.

Moretti, F., Ronchi, D. D., Bernabei, V., Marchetti, L., Ferrari, B., Forlani, C., . . . Atti, A. R. (2010). Pet therapy in elderly patients with mental illness. *Psychogeriatrics*, 11(2), 125-129. doi:10.1111/j.1479-8301.2010.00329.x

- Müller, M. (2003). Differentiating moderate and severe depression using the Montgomery–Åsberg depression rating scale (MADRS). *Journal of Affective Disorders*, 77(3), 255-260. doi:10.1016/s0165-0327(02)00120-9
- Pinquart, M. (2002). Creating and maintaining purpose in life in old age: A meta-analysis. *Ageing International Ageing Int.*, 27(2), 90-114. doi:10.1007/s12126-002-1004-2
- Stinson, C. K., & Kirk, E. (2006). Structured reminiscence: An intervention to decrease depression and increase self-transcendence in older women. *Journal of Clinical Nursing*, 15(2), 208-218. doi:10.1111/j.1365-2702.2006.01292.x
- Ströhle, A. (2008). Physical activity, exercise, depression and anxiety disorders. *Journal of Neural Transmission J Neural Transm*, 116(6), 777-784. doi:10.1007/s00702-008-0092-x
- Szczepańska-Gieracha, J., Kowalska, J., Pawik, M., & Rymaszewska, J. (2013). Evaluation of a short-term group psychotherapy used as part of the rehabilitation process in nursing home patients. *Disability and Rehabilitation*, 36(12), 1027-1032. doi:10.3109/09638288.2013.825331
- Teresi, J., Abrams, R., Holmes, D., Ramirez, M., & Eimicke, J. (2001). Prevalence of depression and depression recognition in nursing homes. *Social Psychiatry and Psychiatric Epidemiology*, 36(12), 613-620. doi:10.1007/s127-001-8202-7
- Teri, L., Logsdon, R. G., Uomoto, J., & McCurry, S. M. (1997). Behavioral Treatment of Depression in Dementia Patients: A Controlled Clinical Trial. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 52B(4). doi:10.1093/geronb/52b.4.p159
- Tsai, Y., Wong, T. K., Tsai, H., & Ku, Y. (2008). Self-worth therapy for depressive symptoms in older nursing home residents. *Journal of Advanced Nursing*, 64(5), 488-494. doi:10.1111/j.1365-2648.2008.04804.x
- Underwood, M., Lamb, S. E., Eldridge, S., Sheehan, B., Slowther, A., Spencer, A., . . . Taylor, S. J. (2013). Exercise for depression in elderly residents of care homes: A cluster-randomised controlled trial. *The Lancet*, 382(9886), 41-49. doi:10.1016/s0140-6736(13)60649-2
- Vankova, H., Holmerova, I., Machacova, K., Volicer, L., Veleta, P., & Celko, A. M. (2014). The Effect of Dance on Depressive Symptoms in Nursing Home Residents. *Journal of the American Medical Directors Association*, 15(8), 582-587. doi:10.1016/j.jamda.2014.04.013
- Watt, L. M., & Cappeliez, P. (2000). Integrative and instrumental reminiscence therapies for depression in older adults: Intervention strategies and treatment effectiveness. *Aging & Mental Health*, 4(2), 166-177. doi:10.1080/13607860050008691
- Werner, J., Wosch, T., & Gold, C. (2015). Effectiveness of group music therapy versus recreational group singing for depressive symptoms of elderly nursing home residents: Pragmatic trial. *Aging & Mental Health*, 1-9. doi:10.1080/13607863.2015.1093599

Williams, C. L., & Tappen, R. M. (2008). Exercise training for depressed older adults with Alzheimer's disease. *Aging & Mental Health, 12*(1), 72-80. doi:10.1080/13607860701529932

Yesavage, J. A., Brink, T., Rose, T. L., Lum, O., Huang, V., Adey, M., & Leirer, V. O. (1982). Development and validation of a geriatric depression screening scale: A preliminary report. *Journal of Psychiatric Research, 17*(1), 37-49. doi:10.1016/0022-3956(82)90033-4