Characteristics of Nursing Facilities and Staff Willingness to Implement a Non-Pharmacological Intervention

Megumi Inoue, MSW, RN, PhD[1] iD, Meng-Hao Li, PhD[1], Shannon Layman, PhD[1], Catherine J. Tompkins, MSW, PhD[1], and Emily S. Ihara, MSW, PhD[1] iD

Abstract

While non-pharmacological interventions could positively impact mood and behaviors of nursing-home residents who are living with dementia, some facilities are more willing to adopt such interventions than others. This study investigated the characteristics of Medicaid-funded nursing facilities that were associated with their willingness to implement a non-pharmacological intervention, personalized music. Using the publicly-available dataset (aka LTCfocus) from Brown University, this study examined characteristics of nursing homes in Virginia that have implemented or are in the process of implementing a personalized music intervention ($n = 59$) and that have decided not to implement it ($n = 216$). The findings indicate that nursing facilities with a higher proportion of long-term residents are more likely to implement the intervention. The findings can inform future research recruitment strategies. In addition, a greater understanding of the use of non-pharmacological interventions in relation to the characteristics of nursing facilities offers insight to policymakers and public health officials regarding resource allocations to facilities.

Keywords

dementia, music, nursing homes, intervention

Introduction

Recruiting nursing facilities to participate in research is challenging even when research offers an easy to implement, non-pharmacological intervention (NPI) that could positively impact residents' mood and behaviors. The use of NPIs has been encouraged as an alternative to antipsychotic medications to treat some challenging symptoms experienced by nursing facility residents living with dementia (Álvarez-Jiménez et al., 2008; Ihara et al., 2019). Some nursing facilities, however, are more willing to adopt new NPIs than others. This is an example of the phenomenon of self-selection bias in non-randomized studies which Larzelere et al. (2004) caution is the most critical threat to making valid causal inferences in intervention research. Bender et al. (2014) note that self-selection bias can cause a substantial difference in socioeconomic characteristics (e.g., age, income, or education) between participants and non-participants in NPIs. A well-conducted randomized design is expected to mitigate self-selection bias but is rarely used in intervention research for ethical or pragmatic reasons (Larzelere et al., 2004). More complications ensue when a research design involves two levels of analyses: nursing facilities and nursing facility residents (Bifulco, 2002). Although evaluators may design a study with nursing facility residents as the unit of analysis and randomly assign residents to the intervention and control groups within a facility, it may be impractical and unethical to recruit some nursing facilities as part of the control group without giving any treatment to their residents. Thus, the induction of self-selection bias in the multilevel research design of NPI studies is unavoidable and needs to be further examined (Kaur et al., 2020).

[1]George Mason University, Fairfax, VA, USA

Corresponding Author:
Megumi Inoue, Department of Social Work, George Mason University, 4400 University Drive, MSN: 1F8, Fairfax, VA 22030, USA.
Email: minoue2@gmu.edu

The personalized music intervention project utilizing the Music & Memory® program (Music & Memory, 2022) that is discussed as the NPI in this paper is an example of this two-level type of research design, which attempts to randomly select nursing facilities and randomly select resident participants within facilities. Self-selection bias may affect the facility's willingness to participate in this type of research study. This paper investigates the characteristics of nursing facilities that are associated with staff willingness to implement the personalized music intervention for residents living with dementia and distinguishes between nursing facilities that opted for this music program NPI and those that decided not to participate in the intervention project.

NPIs as Culture Change

Nursing facilities are an essential component of contemporary long-term care systems. In the United States, the nursing facility industry includes more than 15,000 public (7%), nonprofit (28%), and for-profit (65%) organizations (Martin et al., 2021). The U.S. government spent $172.2 billion on public programs at nursing facilities and continuing care retirement communities in 2019 (Martin et al., 2021). Medicaid and Medicare programs are the major revenue source for those nursing facilities even though most nursing facilities are for-profit (Kaiser Family Foundation, 2017; Martin et al., 2021). Typically, Medicare covers short-term, post-acute care residents and Medicaid covers long-term residents (Grabowski & Mor, 2020). These public programs typically require the funded organizations to comply with complex regulatory and reimbursement regimes (e.g., licensure, certification, inspections or sanctions) which can inhibit the nursing facilities initial response to environmental change (Song et al., 2020). The long-term care industry is further constrained by issues including low wages, limited or no health benefits, heavy workloads, high turnover rates, and job dissatisfaction, leading to disparities in quality of care (Chisholm et al., 2018; Deutschman, 2005).

Given the challenges that nursing facilities encounter, a fundamental cultural change that systematically addresses such constraints is likely needed to achieve sustained quality of care (Miller et al., 2018). The "culture change" movement is an effort to alleviate those constraints and improve both quality of care and quality of life (Koren, 2010). The movement seeks to fundamentally transform nursing facilities from institution-based organizations to person-centered homes and empower staff to enable inclusion and involvement of family and community (Koren, 2010). An ideal facility features the following characteristics: resident direction, homelike atmosphere, close relationships, staff empowerment, collaborative decision making, and quality-improvement processes (Koren, 2010). Of those characteristics, resident direction (encouraging residents to make their own choices), close relationships (among staff, family, residents, and community members) and homelike atmosphere (shifting from an institution-like environment to a home-like environment) are frequently studied by researchers (Shier et al., 2014). Several nursing facilities that incorporate systemic culture change include Green House, Wellspring, Planetree, and the Eden Alternative which have implemented NPI programs (Grabowski et al., 2014). Person-centered NPIs, including those involving music, sensory stimulation, simulated presence, validation therapies, and exercise, have been shown to effectively improve or maintain quality of living or reduce emotional or cognition disorders among nursing facility residents (Meyer & O'Keefe, 2020). Therefore, the implementation of NPIs is critically important for nursing facilities.

Determinants of Willingness to Implement NPIs

Prior studies indicate that nursing facilities with certain characteristics exhibit disproportional motivation to implement NPIs to facilitate organizational change. For example, not-for-profit, large, or faith-based nursing facilities are more likely to implement NPIs than for-profit and small nursing facilities (Grabowski et al., 2014). Nursing facilities with a special care unit (SCU) of some type, fewer Medicaid residents, or higher share of private-pay residents are also more willing to participate in mission-driven programs (Grabowski et al., 2014). Whereas, nursing facilities that serve predominantly Medicaid residents have limited resources such as fewer nurses, lower occupancy rates, and more health-related deficiencies (Álvarez-Jiménez et al., 2008), which limits their ability to participate in NPIs (Grabowski et al., 2014; Mor et al., 2004). At the state policy level, studies suggest that more generous policy-based incentives are associated with increased NPI implementation such as state reimbursement reform or pay-for-performance (Chisholm et al., 2018; Miller, Cohen, et al., 2014; Miller, Looze, et al., 2014). For example, nursing facilities in Kansas that participated in the first year of a Medicaid pay-for-performance program, PEAK 2.0, were not-for-profit, were part of continuing care retirement communities, and had higher occupancy rates and greater quality of care (Hermer et al., 2018).

In short, there is a gap in the literature establishing the specific nursing facility characteristic(s) that lead to or limit the adoption of NPIs, specifically a personalized music intervention. This present study aims to bridge the gap by examining characteristics of nursing facilities that are associated with their staff's willingness to implement a personalized music intervention for residents living with dementia, and also to distinguish between nursing facilities that opted for the personalized music NPI and those that decided not to participate in the music project.

Methods

Sample

This study examines uptake of a personalized music intervention program by nursing facilities funded by Medicaid in Virginia. The personalized music intervention program aims to help participating residents customize their own music playlists, including favorite songs, artists, and music, and listen to the personalized music for 30 min at least twice a week for 4 weeks. Nursing facility recruitment for the program included random selection of 50% of Medicaid-funded facilities in Virginia. These facilities were invited to participate in an NPI program, but some declined to participate and others never responded to recruitment efforts. The recruitment strategy then shifted from complete randomization to an attempt to contact and recruit every Medicaid funded facility in Virginia. Those facilities that agreed to participate became part of the study, thus perpetuating self-selection bias.

The present paper compares characteristics of Medicaid-funded nursing facilities in Virginia where staff have implemented or are implementing a personalized music intervention ($n = 59$) to those where staff declined or showed no interest in such an intervention after we left recruitment messages or sent emails ($n = 216$). On average, the participating nursing facilities have 117 beds ($SD = 50$), and the non-participating nursing facilities have 112 beds ($SD = 57$), with no statistically significant difference between the two groups. The sample facilities are similar in size to the overall Virginia nursing facility profile ($N = 275$) with an average of 113 beds ($SD = 56$).

Data

Data for facility characteristics were obtained from the Brown School of Public Health's "Long-Term Care: Facts on Care in the U.S." (aka LTCfocus) website (Brown University, n.d.). The latest version of the LTCfocus data is 2018. LTCfocus gathered data from a variety of primary and secondary sources, including the Minimum Data Set (MDS), the Online Survey Certification and Reporting (OSCAR) system, the Certification and Survey Provider Enhanced Reporting (CASPER) system, and state policy surveys. Only Medicare- and Medicaid-certified nursing facilities are included in the dataset. The dataset arranges variables across six categories: Acuity, Facility, Facility Identification, Quality, Residents, and Staffing. The variables selected for analysis are relevant to facility type (e.g., presence of Alzheimer's disease special unit, whether or not facility is for-profit), facility staffing (e.g., licensed practical nurse hours per resident day, certified nursing assistant hours per resident day), quality (e.g., risk-adjusted successful discharge rates to community within 100 days, proportion of long-stay residents with daily pain), and residents (e.g., proportion of all admissions during the calendar year that were from the community). Table 1 summarizes the 26 variables used in this study.

All statistical analyses were performed using Stata/MP 14.0. Chi-Square Test of Independence were conducted for categorical variables and an independent samples *t*-test for continuous variables. The distributions of each variable of the Virginia nursing facility population, the participating nursing facilities, and the non-participating nursing facilities are available upon request.

Results

Comparison of Participants and Non-Participants

Comparisons of participating and non-participating nursing facilities showed statistically significant differences. Participating facilities are more likely to have lower rehospitalization rates within 30 days (*adj_rehosprate*) ($p = .046$), lower successful discharge rates to community within 100 days (*adj_successfuldc*) ($p = .017$), the presence of an Alzheimer's disease special care unit (*alzunit*) ($p = .010 < .05$), the presence of a special care unit (*anyunit*) ($p = .022$), a lower number of licensed practical nurse (LPN) hours per resident day (*lpnhrppd*) ($p = .028$), a higher rate of occupied beds (*occpct*) ($p = .020$), and a lower proportion of facility residents whose primary support is Medicare (*paymcare*) ($p = .046$), as compared to non-participating nursing facilities (see Table 2). For the rest of the variables, statistical significance was not observed.

Sample Representativeness

Table 2 (population vs. participants) illustrates that, compared to the general Virginia nursing facility population, participating nursing facilities are underrepresented in admission rates (*adm_bed*) (population = 2.88 vs. participating nursing facilities = 2.36, $p = .030$), licensed practical nurse (LPN) hours per resident day (*lpnhrppd*) ($p = .000$), proportion of facility residents whose primary support is Medicare (*paymcare*) ($p = .015$), and proportion of facility residents who were restrained (*restrain*) ($p = .000$). The participating nursing facilities are over-represented in having an Alzheimer's disease special care unit (alzunit) ($p = .022$), having any special care unit (*anyunit*) ($p = .043$), and occupied beds rates (*occpct*) ($p = .010$). For the rest of the variables, statistical significance was not observed.

Discussion

A personalized music intervention can promote nursing facilities' culture change as it is a person-centered NPI that is expected to reduce the effects of emotional or cognition disorders among nursing facility residents and

Table 1. Variable Definition.

Category	Variable	Scale	Definition
Quality	adj_rehosprate	continuous	Risk-adjusted rehospitalization rates within 30 days
Quality	adj_successfuldc	continuous	Risk-adjusted successful discharge rates to community within 100 days
Facility	adm_bed	continuous	Number of admissions divided by total number of beds
Acuity	agg_cmi_mds3	continuous	The average Resource Utilization Group Nursing Case Mix Index (a measure of the relative intensity of care of different nursing home populations) for all residents admitted during the calendar year (MDS 3.0)
Residents	agg_comm		Proportion of all admissions during the calendar year that were from the community
Facility	alzunit	binary	Indicates whether or not facility has an Alzheimer's disease Special Care Unit (SCU)
Staffing	anymdex	binary	Indicates whether or not facility has a physician extender, meaning a nurse practitioner or physician's assistant
Facility	anyunit	binary	Indicates whether or not facility has any Special Care Unit (SCU) (excluding Ventilator Units)
Facility	avg_dailycensus	continuous	Average Daily Census
Staffing	cnahrppd	continuous	Certified Nursing Assistant (CNA) hours per resident day; For county and state this is the average CNA HPRD among all facilities
Facility	hospbase	binary	Indicates whether or not facility is hospital-based
Staffing	lpnhrppd	continuous	Number of Licensed Practical Nurse (LPN) hours per resident day
Facility	multifac	binary	Indicates whether or not facility is part of a chain
Quality	NHCADL_mds3	continuous	Proportion of long-stay residents with ADL decline (MDS 3.0)
Quality	NHCpain_mds3	continuous	Proportion of long-stay residents with daily pain (MDS 3.0)
Quality	NHCpu_mds3	continuous	Proportion of high-risk long-stay residents with pressure ulcers (MDS 3.0)
Facility	obs_medianlos	continuous	Median Length of Stay
Quality	obs_rehosprate	continuous	Observed rehospitalization rates within 30 days
Quality	obs_successfuldc	continuous	Observed successful discharge rates to community within 100 days
Facility	occpct	continuous	Number of occupied beds in facility divided by the total number of beds
Facility	paymcaid	continuous	Proportion of facility residents whose primary support is Medicaid
Facility	paymcare	continuous	Proportion of facility residents whose primary support is Medicare
Facility	profit	binary	Indicates whether or not the facility is for-profit
Quality	restrain	continuous	Proportion of facility residents who were restrained
Staffing	rn2nrs	continuous	Ratio of number of RN FTEs divided by number of RN FTEs plus LPN FTEs
Facility	totbeds	continuous	Number of beds as reported on the annual OSCAR/CASPER (imputed from previous year if missing or implausible)

improve the quality of their lives (Meyer & O'Keefe, 2020). Being able to identify which facilities are more likely to be willing to or reluctant to adopt such an NPI would help strategize an approach to encourage them to implement NPIs. The study examined the characteristics of nursing facilities that are associated with staff willingness to use the personalized music intervention for residents living with dementia.

The findings indicate that facility staff willingness to implement a personalized music intervention is less about facility staffing and more about the facility itself and the quality of that facility. The only significant staffing variable shown in the study was the number of LPN hours per resident, per day (*lpnhrppd*). The facilities willing to implement the personalized music intervention program had fewer LPN hours per resident, per day

Table 2. Statistical Analysis.

Variable	Population (Avg/Pct)	Participants (Avg/Pct)	Non-participants (Avg/Pct)	p-Value Population vs. participants	p-Value Participants vs. Non-participants
adj_rehosprate	0.16	0.15	0.17	.1269	.0456 < .05
adj_successfuldc	0.73	0.70	0.74	.0696	.0172 < .05
adm_bed	2.88	2.36	3.03	.0306 < .05	.0569
agg_cmi_mds3	1.31	1.32	1.31	.7373	.8218
agg_comm	9.28	10.24	9.03	.4862	.5523
alzunit	0.10	0.19	0.07	.0227 < .05	.0100 < .05
anymdex	0.54	0.53	0.55	.8005	.7760
anyunit	0.11	0.19	0.08	.0428 < .05	.0220 < .05
avg_dailycensus	99.55	102.67	98.68	.5868	.5608
cnahrppd	1.62	1.70	1.60	.7881	.6642
hospbase	0.04	0.00	0.05	.1169	.0770
lpnhrppd	1.04	0.91	1.08	.0006 < .05	.0276 < .05
multifac	0.73	0.75	0.73	.8453	.8260
NHCADL_mds3	15.02	14.14	15.27	.3234	.3029
NHCpain_mds3	7.56	6.81	7.78	.4485	.4131
NHCpu_mds3	7.53	7.13	7.65	.4144	.4333
obs_medianlos	31.25	33.36	30.65	.4287	.3181
obs_rehosprate	0.17	0.16	0.17	.1713	.1280
obs_successfuldc	0.62	0.58	0.63	.1058	.0573
occpct	86.19	89.03	85.38	.0100 < .05	.0196 < .05
paymcaid	56.73	62.10	55.21	.0629	.0829
paymcare	18.10	14.39	19.16	.0153 < .05	.0464 < .05
profit	0.71	0.76	0.69	.3645	.3060
restrain	0.98	0.27	1.19	.0000 < .05	.3939
rn2nrs	0.27	0.26	0.27	.8507	.8424
totbeds	112.81	116.77	111.69	.5557	.5470

in comparison both to facilities that declined the music intervention program and the general Virginia nursing facility population, though there was not a difference between Certified Nursing Assistant (CNA) hours per resident, per day. These results are aligned with results from Deutschman (2005) and Chisholm et al. (2018) in that the constraints of Medicaid and Medicare programs within facilities can result in heavy workloads for staff. Similarly, our findings indicate that the facilities participating in the music study had lower rates of residents who are supported by Medicare (*paymcare*) in comparison to both non-participating facilities and the general Virginia nursing facility population, which indicates that facilities that were more open to adopt NPIs have more long-term residents. There was not a significant difference between groups in Medicaid resident rates (*paymcaid*).

Other significant variables describing the facility itself indicated that facilities that implemented our music program had fewer average admissions (*adm_bed*) compared to the total Virginia facilities (with this effect trending in significance in comparison to facilities declining to participate in our music program). Our participating facilities also had more Alzheimer's disease SCUs (*alzunit*) and SCUs in general (*anyunit*) in comparison to both non-participating facilities and Virginia

facilities overall. Findings from Grabowski et al. (2014) were similar to our findings in that facilities having some type of SCU are more willing to participate in voluntary programs. Lastly, our music program facilities had higher occupancy rates in comparison to both non-participating facilities and Virginia facilities overall. While this finding might appear counterintuitive, higher occupancy rates generally indicate that a facility has greater resources and higher quality of care (Grabowski et al., 2014; Hermer et al., 2018; Mor et al., 2004).

Regarding the quality-related variables, our participating facilities had lower rehospitalization rates (*adj_rehosprate*), and lower successful discharge rates meaning more long-term stays (*adj_successfuldc*) in comparison to non-participating facilities, with the latter variable only trending in significance in comparison to Virginia nursing facilities. Our facilities had lower restraint rates (*restrain*) in comparison to Virginia facilities overall. Interest in the intervention among staff at a facility with a lower restraint rate might be associated with a culture of respecting residents' autonomy and dignity, which is consistent with the personalized music intervention's goal of person-centered care. Overall, it is important to note that our music program did not cause a change in these facility qualities. Rather, these quali-

ties provided a facility environment that was more conducive to adding our music program.

The presence of an Alzheimer's disease unit, lower LPN staffing, and higher bed occupancy rates suggest a busy work environment. In such settings, a personalized music intervention might be perceived as a useful tool to adopt given its wide and effective use among people with dementia and its reported efficacy in improving residents' mood and behaviors. Because Medicare does not cover long-term care stays, having fewer Medicare-supported residents may be associated with having more residents with chronic conditions who are more likely to benefit from this type of intervention. Medicare residents are often in the facility for rehabilitation purposes and facility staff may not see them as the best candidates for a personalized music intervention. While these findings shed light on the characteristics of nursing facilities most likely to participate in a specific NPI, a music program, these findings can also inform future recruitment efforts to reach facilities that were not previously interested in NPIs. One important detail to consider, however, is that resource limitations encountered by these facilities remain a core obstacle to the addition of NPIs.

There are policy implications associated with this study. Previous studies show that more resources in the form of generous policy-based incentives are associated with increased NPI implementation (Chisholm et al., 2018; Miller, Cohen, et al., 2014; Miller, Looze, et al., 2014). If a substantial reason why some facilities avoid NPIs is related to complex regulatory and reimbursement regimes of federal and state-wide public programs at their facility, then an important future direction would be to communicate the numerous findings regarding the efficacy and benefits of NPIs to state and federal lawmakers and/or public health officials, with the goal of building funding for NPI adoption into these public programs. Doing so would create an atmosphere where facilities may feel more comfortable adjusting their facility environment for NPIs, without the threat of regulatory sanctions. While facility staff may be intrinsically interested in NPIs, the lack of comfort at the organizational-level within facilities is not conducive to staff motivations and interest in NPI implementation.

There are a few limitations that should be noted. First, this study focused on nursing facilities in Virginia. Although there are federal nursing home regulations, there may be variations in rules, incentives, and waivers across states, thus requiring caution when applying the study findings to nursing facilities outside Virginia. Second, the findings are based on nursing facilities responses to our recruitment for a specific NPI, a personalized music intervention. Their responses might have been different for different types of NPIs.

Authors Note

This manuscript will not be submitted, in part or entirety, elsewhere for publication before the decision.

ORCID iDs

Megumi Inoue [iD] https://orcid.org/0000-0001-8077-6711
Emily S. Ihara [iD] https://orcid.org/0000-0002-3163-2380

References

Álvarez-Jiménez, M., Hetrick, S. E., César, G.-B., Gleeson, J. F., & McGorry, P. D. (2008). Non-pharmacological management of antipsychotic-induced weight gain: Systematic review and meta-analysis of randomised controlled trials. *The British Journal of Psychiatry*, *193*(2), 101–107. http://doi.org/10.1192/bjp.bp.107.042853

Bender, A. M., Jørgensen, T., Helbech, B., Linneberg, A., & Pisinger, C. (2014). Socioeconomic position and participation in baseline and follow-up visits: The Inter99 study. *European Journal of Preventive Cardiology*, *21*(7), 899–905. https://doi.org/10.1177/2047487312472076

Bifulco, R. (2002). Addressing self-selection bias in quasi-experimental evaluations of whole-school reform: A comparison of methods. *Evaluation Review*, *26*(5), 545–572. https://doi.org/10.1177/019384102236523

Brown University. (n.d.). *LTCFocus*. http://LTCfocus.org

Chisholm, L., Zhang, N. J., Hyer, K., Pradhan, R., Unruh, L., & Lin, F.-C. (2018). Culture change in nursing homes: What is the role of nursing home resources? *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, *55*, 0046958018787043. https://doi.org/10.1177/0046958018787043

Deutschman, M. T. (2005). An ethnographic study of nursing home culture to define organizational realities of culture change. *Journal of Health and Human Services Administration*, *28*(2), 246–281.

Grabowski, D. C., Elliot, A., Leitzell, B., Cohen, L. W., & Zimmerman, S. (2014). Who are the innovators? Nursing homes implementing culture change. *The Gerontologist*, *54*(suppl_1), S65–S75. https://doi.org/10.1093/geront/gnt144

Grabowski, D. C., & Mor, V. (2020). Nursing home care in crisis in the wake of COVID-19. *JAMA*, *324*(1), 23–24. https://doi.org/10.1001/jama.2020.8524

Hermer, L., Cornelison, L., Kaup, M. L., Poey, J. L., Stone, R., & Doll, G. (2018). The Kansas PEAK 2.0 program

facilitates the diffusion of culture-change innovation to unlikely adopters. *The Gerontologist*, *58*(3), 530–539. https://doi.org/10.1093/geront/gnw210

Ihara, E. S., Tompkins, C. J., Inoue, M., & Sonneman, S. (2019). Results from a person-centered music intervention for individuals living with dementia. *Geriatrics & Gerontology International*, *19*(1), 30–34. https://doi.org/10.1111/ggi.13563

Kaiser Family Foundation. (2017, June 20). Medicaid's role in nursing home care. *KFF*. https://www.kff.org/infographic/medicaids-role-in-nursing-home-care/

Kaur, N., Dendukuri, N., Fellows, L. K., Brouillette, M.-J., & Mayo, N. (2020). Association between cognitive reserve and cognitive performance in people with HIV: A systematic review and meta-analysis. *AIDS Care*, *32*(1), 1–11. https://doi.org/10.1080/09540121.2019.1612017

Koren, M. J. (2010). Person-centered care for nursing home residents: The culture-change movement. *Health Affairs*, *29*(2), 312–317. https://doi.org/10.1377/hlthaff.2009.0966

Larzelere, R. E., Kuhn, B. R., & Johnson, B. (2004). The intervention selection bias: An underrecognized confound in intervention research. *Psychological Bulletin*, *130*(2), 289–303. https://doi.org/10.1037/0033-2909.130.2.289

Martin, A. B., Hartman, M., Lassman, D., & Catlin, A. (2021). National health care spending in 2019: Steady growth for the fourth consecutive year. *Health Affairs*, *40*(1), 14–24. https://doi.org/10.1377/hlthaff.2020.02022

Meyer, C., & O'Keefe, F. (2020). Non-pharmacological interventions for people with dementia: A review of reviews. *Dementia*, *19*(6), 1927–1954. https://doi.org/10.1177/1471301218813234

Miller, S. C., Cohen, N., Lima, J. C., & Mor, V. (2014). Medicaid capital reimbursement policy and environmental artifacts of nursing home culture change. *The Gerontologist*, *54*(suppl_1), S76–S86. https://doi.org/10.1093/geront/gnt141

Miller, S. C., Looze, J., Shield, R., Clark, M. A., Lepore, M., Tyler, D., Sterns, S., & Mor, V. (2014). Culture change practice in U.S. nursing homes: Prevalence and variation by state Medicaid reimbursement policies. *The Gerontologist*, *54*(3), 434–445. https://doi.org/10.1093/geront/gnt020

Miller, S. C., Schwartz, M. L., Lima, J. C., Shield, R. R., Tyler, D. A., Berridge, C. W., Gozalo, P. L., Lepore, M. J., & Clark, M. A. (2018). The prevalence of culture change practice in US nursing homes: Findings from a 2016/17 nationwide survey. *Medical Care*, *56*(12), 985–993. https://doi.org/10.1097/MLR.0000000000000993

Mor, V., Zinn, J., Angelelli, J., Teno, J. M., & Miller, S. C. (2004). Driven to tiers: Socioeconomic and racial disparities in the quality of nursing home care. *The Milbank Quarterly*, *82*(2), 227–256. https://doi.org/10.1111/j.0887-378X.2004.00309.x

Music & Memory. (2022). *The power of personalized music*. https://musicandmemory.org/about/

Shier, V., Khodyakov, D., Cohen, L. W., Zimmerman, S., & Saliba, D. (2014). What does the evidence really say about culture change in nursing homes? *The Gerontologist*, *54*(suppl_1), S6–S16. https://doi.org/10.1093/geront/gnt147

Song, M., Meier, K. J., & Amirkhanyan, A. (2020). Goal ambiguity, management, and performance in U.S. nursing homes. *Administration & Society*, *52*(8), 1170–1208. https://doi.org/10.1177/0095399720901343