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Fostering Improvement in Occupational Performance Through Environment Modification in Skilled Nursing Facilities

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**Fostering Improvement in Occupational Performance Through Environment
Modification in Skilled Nursing Facilities**
Critically Appraised Topic (CAT)

First-year occupational therapy students at the University of North Dakota School of Medicines and Health Sciences completed this CAT. The general topic assigned was the completion of activities of daily living (ADLs) and instrumental activities of daily living (IADLs) by older adults in a skilled nursing facility (SNF). Students formed a focus question, a case scenario, and then researched and presented key findings. Students then presented implications for practice in occupational therapy with the evidence of scholarly research in the areas of theory, environment, population, and interventions. The intervention that was chosen for this CAT was the Green House Project. The Green House Project is an intervention strategy in which the proponents of this intervention suggest remodeling skilled nursing facilities into small homes (10 or fewer residents per home) that are designed to be similar to the clients' home environments (Cutler & Kane, 2009). The population of older adults living in SNF in urban areas was further explored to grasp a better understanding of their unique characteristics. The Person-Environment-Occupation model (PEO) (Law et al., 1996) was the theory chosen to guide scholarly research for this CAT. The founders of PEO emphasized the importance of *goodness of fit* (Law et al., 1996). Law et al. (1996) suggested that the person, environment, and occupation should be interdependent upon one another, creating an optimal performance for the individual in whichever context he or she is performing his or her occupation.

Focused Question

How does altering the physical environment of skilled nursing facilities (SNFs) located in urban areas improve older adult's (65 years and up) occupational performance when completing ADLs and IADLs, as well as improving ethical treatment?

Clinical Scenario:

- According to the Centers for Disease Control and Prevention (2019), 71.5% of nursing homes were located in urban areas. The Centers for Disease Control and Prevention (2019) reported that the majority of adults residing in SNFs are aged 65 years or older. This is why the population of Adults older than 65 years old who are in a SNF in an urban area was chosen. Lien, Steggell, and Iwarsson, (2015) stated that older adults desire independence into old age. Part of independent living involved performing ADLs and IADLs with little to no assistance. The adults that are in SNFs need to be able to perform these activities in order to be discharged back into their home environments once there is a good fit between the person, his or her environment, and the ADLs and IADLs that he or she takes part in on a regular basis (Law et al., 1996). The United States Census Bureau (2012) stated that the number of people ages 65 years or older in the United States is expected to increase by 76% by the year 2050. With this



increase, it is likely that the number of older adults in SNFs will increase rapidly in the coming years, which is why an improved intervention of creating a good fit for these clients to discharge was needed to increase ethical treatment within the facilities (Law et al., 1996).

- There are many aspects of the environment, but our clinical question pertains to the physical environment, specifically. Oftentimes, environmental factors within the home can cause barriers to client success in occupations. When these environmental factors are paired with an individual's declines in health, the individuals often lose their ability to stay at home (Lien et al., 2015). The physical environment of a SNF varies from facility to facility, but it rarely matches the environment in which the client is used to performing. Because of this disconnect between the two environments, clients are forced to adapt to new environments and work on occupations with which they may be struggling. The new physical environment fosters a spirit of dependency and can lead clients to develop attitudes associated with learned helplessness (Govender, Boyd, Hassim, Jordaan, Mahomed, & Strauli-Paul, 2015). Limited access to resources and new routines enforced by SNF also affect clients. Research has shown that these two factors can increase levels of dependence and take away clients' sense of control (Govender et al., 2015). The level of familiarity within the skilled nursing home can greatly affect the client. Knowledge of the client's home environment needs to be kept in mind when creating interventions. Adequate knowledge of the client's home environment can help practitioners make the simulated environment more like home and catch problems that are likely to occur in the client's home environment (Carnahan, Slaven, Callahan, Tu, & Torke, 2017).
- Interventions that would be beneficial for this population involve evaluations to better understand the environment of a SNF. A home evaluation may take place to see if the client is independent in his or her own home and can successfully perform ADLs and IADLs, if not they may be admitted to a SNF. We chose to target the environment of the SNF in order to find interventions that are applicable to the chosen occupation of ADLs and IADLs as well as improving ethical treatment. When clients are able to successfully complete ADLs and IADLs in the environment of a SNF, the client will likely feel more positive about his or her quality of life due to the increase in ethical treatment and occupational performance. The problem at hand is the fact that the environment of SNF is unfamiliar, inadequate, and inconvenient when compared to the environment of the client's former residence. If the environment of the SNF was more similar to the client's home, then the performance of ADLs and IADLs could be more successful thus increasing the ethical treatment and satisfaction of the patient. Possible interventions may involve home evaluations to identify ways to make the environment in the SNF more similar to the client's home. This may help the client adapt and modify his or her environment to compensate for the environmental variation.

Study Parameters:

Limitations involved in our search included finding sources that were recent and had content validity. Articles were to include information about either individuals over age 65 years, the model of PEO (Law et al., 1996), or individuals living in a SNF. Inclusion criteria also included information about occupational therapy, occupational performance, as well as ADLs and IADLs. Exclusion criteria included professions other than occupational therapy, environments other than a SNF as well as participants in studies that were not 65 and older.

Literature Search:

Scholarly literature was searched and examined to answer a clinical question for our CAT. “How does altering the physical environment of SNFs located in urban areas improve older adult’s (65 years and up) occupational performance when completing ADLs and IADLs as well as improving ethical treatment?” When we began our literature search, we sought to explore some of the problems this population faces. Specifically, we sought to understand the presence or lack of occupational deprivation, occupation-based interventions, rote exercise, and client-centered interventions targeting ADLs/IADLs. Other research topics included home evaluations, environmental modifications, adaptive strategies, and compensatory techniques for improving ethical treatment. In some of the literature, the improvement of ethics were discussed for those practicing with clients 65 years and older. Ethics were not found to be poor in any of the studies that were reviewed, but it is always possible to improve on the ethical treatment of clients. This topic was specified to environmental factors of SNFs that impact independence and performance in ADLs and IADLs of those residing in these facilities.

After further review, the PEO model was selected to guide the research process. The databases used to select sources were CINAHL Complete, database for the American Journal of Occupational Therapy (AJOT), Science Direct, Google Books, Sagepub, MEDLINE Complete, and PubMed. The databases utilized offer reliable and valid information from scholarly works as well as useful information about the topic at hand. The terms searched in these databases are listed in Table 1.

Table 1

Key Terms Searched

Urban	Older Adults	Occupational Therapy
IADLs	SNFs	ADLs
Physical environment	Occupational Therapy Interventions	Environment
Occupation-centered	Occupation	Discharge



Geriatrics/Productive Aging	Evidence-based Practice	Occupational Deprivation
Elderly	Culture Change Movement	Studies

Most information was current and published within the last five years unless it was original research or older research that was needed due to a lack of studies done. Many of the articles included information about SNF. These articles were included, as SNF and their environment were the identified setting for the topic selected. Lastly, articles regarding ADLs, IADLs, and performance in these areas of occupation were included as this was another component of the topic selected. These articles and the information they possessed will serve as a foundation for future research and propose a bottom line for occupational therapy practice.

Summary of Key Findings:

Five level NA (de Boer, Verbeek, Zwakhalen, & Hamers, 2019; Govender et al., 2015; Howie, Coulter, & Feldman, 2004; Lien, Steggell, & Iwarsson, 2015; Maclean, Carin-Levy, Hunter, Malcolmson, & Locke, 2012). One level I (Zimmerman, Cohen, Grabowski, Horn, & Kempers, 2015), two level III (Cutler & Kane, 2009; Kane, Lum, Cutler, Degenholtz, & Yu 2007), one level IV articles (Carnahan et al., 2017) included in this review report information on the Green House Project, older adults in a SNF, and PEO.

Intervention(Green House Project):

- Cutler and Kane (2009) stated in a level III article that a Green House is a single building residence that is designed for 10 occupants who require a nursing home level of care. This building can be a part of a group of Green Houses that make up a SNF or it can make up part of a SNF that also has the classic room set up in other buildings (cite source). Due to this variability of how they can be situated Green Houses can be on the campus of a retirement community or in different neighborhoods (Cutler & Kane, 2009). Within the Green Houses, “the physical environments were expected to be homes with all their hallmarks and to blend into their neighborhoods. Conversely, institutional hallmarks such as long double-loaded corridors, nursing stations, public address systems, and medicine carts were to be eliminated.” (Cutler & Kane, 2009 p. 306). By removing these hallmarks, it helps align the Green House project with the “Culture Change Movement” that has been described by Bowers, Nolet, and Jacobson (2015), in a Level NA study. According to these authors, Green Houses are a perfect example of the “Culture Change Movement” that is aimed at deinstitutionalizing SNFs (Bowers et al., 2009). They also stated that by changing the environment of the nursing home by building Green Houses it improved the ethical treatment of the residents (Bowers et al., 2009). The idea of treating residents more ethically by altering the physical environment of where they live to be more like a home supports the occupational performance of residents with their ADLs and IADLs. Furthermore, according to Cutler and Kane (2009), the reason they are designed to be just like a home is to help promote engagement in meaningful activities and interaction. When



referencing PEO, Law et al., (1996) declared the person and the environment as interdependent, such that an individual's behavior cannot be separated from the environment in which it occurs (Turpin & Iwama, 2011). Law et al., (1996) stated that PEO demonstrates what people do in their daily lives, what motivates them, and how their personal characteristics combine with the contexts in which their occupations take place to increase occupational performance. Once one understands the theory behind PEO one will understand that if the person's environment is a good fit for him or her, he or she will, in turn, increase his or her level of occupational performance and the occupations in which the individual can engage (Law et al., 1996). According to Cutler and Kane (2009), residents in Green Houses are encouraged to bring their own furniture, decorations, and other household items. This is like bringing their home environment to the nursing home, which can help promote sustained success with performing ADLs due to having the familiarity with parts of the environment even after moving home or moving to the SNF.

- In a level III study, a Green House facility was compared to a typical SNF (Kane et al., 2007). These authors stated that it was found that residents had a significantly longer stay at the typical SNF than at the Green House facility. The study by Kane et al. (2007) also found that residents at the Green House rated their quality of life based on 11 categories as higher than the residents who stayed in the typical SNF. The residents in the Green House also had lower incidences of ADL decline as they aged than in the SNF (Kane et al. 2007). This shows that altering the environment to be more familiar to the clients assists them with their ability in performing their ADLs.
- In a level I article, Zimmerman, Cohen, Grabowski, Horn, and Kempers (2015) reported that when designing and implementing a Green House, a physician or nurse practitioner should be consulted on the implementation and what kinds of things can be tailored to a certain setting to be different than the exact model. Consulting with other health professionals such as occupational therapists, physical therapists, and nurses could also be beneficial as each member of the care team brings a different way of thinking to the table that could benefit the client.
- According to the Robert Wood Foundation (2019), who supported the Green House project through a grant from 2010-2018, there are currently more than 260 Green Houses located in 32 states.

Older Adults in SNFs: In order to provide adequate interventions, it is necessary to look at the population and the environment in which they reside. Three articles were included about older adults in SNFs. Authors of one of the articles also discussed the diagnosis and impact of dementia (de Boer et al., 2019). This was included because in 2016 it was reported that 47.8% of people in SNFs have some form of dementia (Harris-Kojetin, Sengupta, Lendon, Rome, Valverde, & Caffrey, 2019).

- In a qualitative study (level NA), which was completed in a chronic care facility in South Africa, researchers reported on the lived experiences of the residents, family members of residents, and health care professionals (Govender et al., 2015). Many types of data collection strategies were utilized, such as narratives of four residents and semi-structured interviews of 10 health care professionals, five family members, and

eight additional residents (Govender et al., 2015). The content of these narratives was analyzed, and a general theme emerged that included three subthemes (Govender et al., 2015). The general theme that was concluded by researchers was that the environment is the biggest impact on the residents' lived experiences and perceived quality of life, which was further broken down into the physical environment, social environment, and organizational environment (Govender et al., 2015). Each of these environments created numerous barriers for the residents. However, the barriers that were thought of as the most challenging included the lack of accessibility of the facility for all residents and the routines and structures of the facility that ultimately minimize client-centered care and reduce the ability of the clients to engage in meaningful occupations (Govender et al., 2015). Govender and colleagues (2015) also spoke of ethical considerations throughout this article and how to possibly improve them. The biggest ethical consideration that was consistently brought up was about how care must be specific to the individual and all residents should have the opportunity to engage in meaningful occupation (Govender et al., 2015).

- A secondary data analysis (Level IV) was conducted using the Older Adults Transition Study (OATS) database in central Indiana. Data used in this study was collected on 1,543 adults aged 65+ who were Medicare or dual-eligible enrollees during January 1, 2007, and October 1, 2010 (Carnahan et al., 2017). The OATS Database originally consisted of 33,386 adults who met this requirement, but inclusionary criteria and exclusionary criteria were set to narrow down the sample (Carnahan et al., 2017). The inclusionary criteria included adults who had spent three or more nights in the hospital before being discharged to a SNF and excluded people who died in the SNF, did not directly go to a SNF after leaving the hospital, or people who were considered long-stay patients (>106 days) (Carnahan et al., 2017). The focus of this analysis was the relationship between hospital readmission within 30 days of discharge from SNFs and early outpatient care once the resident had moved home (Carnahan et al., 2017). Numerous additional data analyses were conducted with different variables in the sample along with this main area of interest (Carnahan et al., 2017). After the analyses, the researchers concluded that reduced 30-day hospital readmission was associated with home health visits conducted within the first week of the resident returning home (Carnahan et al., 2017). However, the result was not the same in regard to outpatient clinician visits within the first week of discharge from a SNF. Carnahan et al. (2017) indicated that although this helped reduce readmission to the hospital within two to three weeks of leaving the SNF, there was no overall difference for readmission to the hospital within the 30-day period. Carnahan et al. (2017) stated one main difference between the two interventions that may lead to these results. They hypothesized that this outcome was because home health visits often provide information about the individual's home environment that could cause potential safety and transition issues for the resident who has newly moved home (Carnahan et al., 2017).
- A qualitative study, level NA, was conducted in the Netherlands with close family members of those with dementia who reside in either traditional nursing homes, small-scale living facilities and green care farms (de Boer et al., 2019). Small-scale living facilities are facilities that provide similar care to traditional nursing homes but have a home-like character and cater to smaller groups of individuals (de Boer et al., 2019).

Green care farms are considered to be in a similar category with small-scale living facilities but have a couple of major differences. Green care farms also provide nursing services and have a home-like environment, but they are located on farms that come with animals and plants with which the residents may interact (de Boer et al., 2019). Semi-structured interviews were completed with 43 close family members to complete this study. The purpose was to understand their perspectives (including the positive and negative experiences they have had) and the differences in perception based on the facility in which their family member resides (de Boer et al., 2019). After the interviews were recorded, they were transcribed, then analyzed. Experiences were categorized into five themes including the physical environment and atmosphere, activities, person-centered care, communication and staff (de Boer et al., 2019). Of these five themes, the first three themes had the most agreement amongst the interviewees. The authors concluded that the physical environment of green care farms and small-scale living facilities were talked about more positively than traditional nursing homes due to being more ‘home-like’ versus ‘hospital-like (de Boer et al., 2019). However, the positive view of the small-scale living facilities did not necessarily translate into the themes of activities and person-centered care. Green care farms were rated more positively in the areas of person-centeredness and integrating meaningful activities into everyday life than small-scale living facilities and traditional nursing homes (de Boer et al., 2019). The last themes that were analyzed were communication and staff. Communication and staff showed the most variability in opinion amongst the interviewees, but it was concluded that these variables depended on the situation and who was working, rather than the type of facility (de Boer et al., 2019).

PEO: PEO emphasizes the importance of “goodness of fit” (Law et al., 1996). This means that the person, environment, and occupation of the individual should all be supporting one another to increase one’s occupational performance (Law et al., 1996). PEO is the best model to use as our lens to interpret how older adults can increase their occupational performance by completing ADLs and IADLs when residing in SNFs.

- A qualitative study, level NA, took place in Scotland (Maclean et al., 2012). Occupational therapists reported on the challenges faced when working with individuals in an acute care setting (Maclean et al., 2012). The occupational therapists in this study noted the decline in an individual’s occupational performance, the need for patient discharge, and the importance of keeping occupational therapy occupation-focused and client-centered (Maclean et al., 2012). Seven therapists were placed into a focus group, received education on the PEO model, and then practiced and reported their findings of the usefulness of the model (Maclean et al., 2012; Law et al., 1996). Therapists found that the framework was clear, comfortable and easy to follow, while also being complex and useful (Maclean et al., 2012). Turpin and Iwama (2011) suggested that the authors of PEO saw the need for occupational therapy to value the context in which one’s occupations take place (Maclean et al., 2012; Law et al., 1996). Research has shown how the hospitalization of older adults in acute care can mean that occupational performance becomes “decontextualized” especially in matters pertaining

to self-care (Maclean et al., 2012; Law et al., 1996). It can be challenging to keep one's practice client-centered in acute care settings, which is why it is important to note the characteristics of PEO and think about how the environment, person, and occupation are interacting together. This will then help increase the client's occupational performance, keep the practice client-centered, and increase rates of discharge (Maclean et al., 2012; Law et al., 1996).

- A qualitative study, level NA, gathered participant's perceptions of the fit between the person and the environment (Law et al., 1996). Individuals were ages 65-89 years and reported functional limitations such as vision, hearing, mobility, upper extremity, lower extremity, and the use of a mobility device (Lien et al., 2015). This study used an assessment called the Home Enabler (HE) to determine the accessibility, usability, and adaptive behaviors utilized by older adults to overcome the challenges due to loss of function or support (Lien et al., 2015). This approach shows the importance of the individual's perception of the fit (Law et al., 1996) between his or her abilities and his or her environment. Individuals reported that they want to maintain their independence and are making modifications to their environment in order to adapt to their functional limitations (Lien et al., 2015).
- In a narrative article, level NA, Howie and colleagues (2004) state the importance of older adults maintaining their occupational identity while facing the challenges of changing social and physical environments (Howie et al., 2004). Narratives were gathered from interviews with participants who were 75 years or older. This study demonstrates that occupations should be maintained across the life span, even when faced with contextual inconsistencies, for this will help to maintain one's occupational identity (Howie et al., 2004).

Discussion:

Many of the sources reported valid and reliable results and showed their transparency and trustworthiness (Bowers et al., 2015; de Boer et al., 2019; Cutler & Kane, 2009; Govender et al., 2015; Howie et al., 2004; Maclean et al., 2012; Lien et al., 2015; Kane et al. 2007; Zimmerman et al. 2015). However, a variety of authors stated that their participants were predominantly white, had a bachelor's degree or higher, and were selected via convenience sampling (Howie et al., 2004; Maclean et al., 2012). Some authors state that their findings may not be generalizable to the larger population due to their specificity but were included due to their findings and the possibility of transferability (de Boer et al., 2019; Govender et al., 2015; Howie et al., 2004; Lien et al., 2015). However, based on the rigorous search of the literature, it is strongly evident that the Green House project was an effective intervention for older adults in a SNF (Cutler & Kane, 2009; Kane et al. 2007). Through the use of PEO as one's scope, we effectively examined the person, environment, and occupation to ensure the "goodness of fit" (Law et al., 1996). The literature showed that adults 65 and older will benefit in a SNF with the Green House project. Their occupational performance of ADLs and IADLs will improve as well as the ethical treatment provided by their caregivers.

Bottom Line for Occupational Therapy Practice:

The clinical question for this CAT was “How does altering the physical environment of skilled nursing facilities (SNFs) located in urban areas improve older adult’s (65 years and up) occupational performance when completing ADLs and IADLs, as well as improving ethical treatment?” Evidence indicated that occupational therapists should utilize the Green House Project and use PEO as their lens for practice to ensure that they are offering therapy that is client-centered, occupation focused, and ethically correct (Cutler & Kane, 2009; Law et al., 1996). The Green House project is designed to allow the resident skilled nursing facility to live in a small home (10 or fewer residents per home) that are similar to their own home and bedroom and allows them to bring their own furniture and personal belongings. (Cutler & Kane, 2009) By allowing clients to bring familiar items to a room that feels more like home it was found that it increased the resident’s perception of quality of life in 11 areas, had decreased decline in ADLs, and further increased ethical treatment of residents. (Bowers et al., 2009; Cutler & Kane, 2009; Kane et al. 2007).

An important collaborator that the occupational therapist should consult with was the resident and their family/caretaker to make sure that any items the resident wants to be brought from home were brought to the Green House so that their room feels like home to them. (Cutler & Kane, 2009). When implementing the Green House project as an intervention it was also important that occupational therapists consult with other health professionals such as physicians, nurse practitioners, nurses, and physical therapists to implement an interdisciplinary approach (Zimmerman et al. 2015). However, more studies on the Green House Project are needed due to the fact that it is a relatively new intervention strategy (Cutler & Kane, 2009). There were also potential biases in the studies on the Green House Project due to the same authors conducting multiple studies and the authors’ own personal interest in promoting the Green House Project (Bower et al., ; Cutler & Kane, 2009; Kane et al., 2007; Zimmerman et al., 2015).

The CDC (2019) found that 71.5% of nursing homes are located in urban areas and the majority of adults residing in SNFs are aged 65 years or older. Green Houses are only in 32 of the 50 states within the United States and that there are not many located in urban areas (Cutler & Kane, 2009; Robert Wood Foundation, 2019). Therefore, there is an evident need for urban areas to adopt Green Houses as a method of intervention to facilitate improvement in resident occupational performance and ethical treatment (Bowers et al., 2015; Cutler & Kane, 2009; Govender et at., 2015; Maclean et al., 2012).

Implications:

When assessing one’s occupational performance it was crucial to consider the individual’s environment and whether it is supporting or inhibiting their performance of ADLs and IADLs (Howie et al., 2004; Law et al., 1996; Maclean et al., 2012). It is important to remember that our profession is occupation-based and we must treat our clients accordingly by providing occupation-based interventions that represent the clients’ values and addresses their needs (Bowers et al., 2015; Govender et at., 2015; Maclean et al., 2012). Our clients deserve a treatment that is not only client-centered, but that is ethically supported by best practice and enabling (Bowers et al., 2015; Govender et at., 2015; Maclean et al., 2012). Performing self-

care tasks such as ADLs and IADLs is a part of one's occupational identity, and this is something that should be maintained throughout the lifespan (Howie et al., 2004; Lien et al., 2015; Maclean et al., 2012).

Articles Selected for Appraisal:

- Bowers, B., Nolet, K., & Jacobson, N. (2015). Sustaining culture change: Experiences in the green house model. *Health Services Research, 51*, 398–417. doi: 10.1111/1475-6773.12428
- Carnahan, J. L., Slaven, J. E., Callahan, C. M., Tu, W., & Torke, A. M. (2017). Transitions from skilled nursing facility to home: The relationship of early outpatient care to hospital readmission. *Journal of the American Medical Directors Association, 18*(10), 853–859. Retrieved from <https://doi.org/10.1016/j.jamda.2017.05.007>
- Cutler, L. J., & Kane, R. A. (2009). Post-Occupancy Evaluation of a Transformed Nursing Home: The First Four Green House® Settings. *Journal of Housing For the Elderly, 23*(4), 304–334. doi: 10.1080/02763890903327010
- de Boer, B., Verbeek, H., Zwakhalen, S. M. G., & Hamers, J. P. H. (2019). Experiences of family caregivers in green care farms and other nursing home environments for people with dementia: A qualitative study. *BMC Geriatrics, 19*(1), 1–10. Retrieved from <https://doi-org.ezproxylr.med.und.edu/10.1186/s12877-019-1163-6>
- Govender, P., Boyd, J., Hassim, A., Jordaan, T., Mahomed, N., & Straeuli-Paul, D. (2015). Life within chronic care: Is this a service or sentence? *African Health Sciences, 15*(2), 665–672. Retrieved from <https://doi.org/10.4314/ahs.v15i2.46>
- Howie, L., Coulter, M., & Feldman, S. (2004). Crafting the self: Older persons' narratives of occupational identity. *American Journal of Occupational Therapy, 58*, 446–454.
- Kane, R. A., Lum, T. Y., Cutler, L. J., Degenholtz, H. B., & Yu, T.-C. (2007). Resident outcomes in small-house nursing homes: A longitudinal evaluation of the initial green house program. *Journal of the American Geriatrics Society, 55*(6), 832–839. doi: 10.1111/j.1532-5415.2007.01169.x
- Lien, L. L., Steggell, C. D., & Iwarsson, S. (2015). Adaptive strategies and person-environment fit among functionally limited older adults aging in place: A mixed methods approach. *International Journal of Environmental Research and Public Health, 12*(9), 11954–11974. Retrieved from <https://doi.org/10.3390/ijerph120911954>
- Maclean, F., Carin-Levy, G., Hunter, H., Malcolmson, L., Locke, E. (2012). The usefulness of the Person-Environment-Occupation model in an acute physical health care setting. *British Journal of Occupational Therapy, 75*(12), 555-562. Retrieved from: 10.4276/030802212X13548955545530
- Zimmerman, S., Bowers, B. J., Cohen, L. W., Grabowski, D. C., Horn, S. D., & Kemper, P. (2015). New evidence on the green house model of nursing home care: Synthesis of findings and implications for policy, practice, and research. *Health Services Research, 51*, 475–496. doi: 10.1111/1475-6773.12430

Additional References



- Harris-Kojetin, L., Sengupta, M., Lendon, J. P., Rome, V., Valverde, R., & Caffrey, C. (2019). Long-term care providers and services users in the United States, 2015-2016. *Center for Disease Control and Prevention: Vital and Health Statistics*, 3(43), 1-78. Retrieved from <https://www.cdc.gov/nchs/fastats/nursing-home-care.htm>
- Law, M., Cooper, B. A., Strong, S., Stewart, D., Rigby, P., & Letts, L. (1996). The Person-Environment-Occupation model: A transactive approach to occupational performance. *Canadian Journal of Occupational Therapy*, 63, 9-23.
- Robert Wood Foundation. (2019) The Green House Project: Reimagining traditional nursing homes. Retrieved from <https://www.rwjf.org/en/how-we-work/grants-explorer/featured-programs/the-green-house-project.html>
- United States Census Bureau. (2012). National population projections: Summary tables. Retrieved from <http://www.census.gov/population/projections/data/national/2012/summarytables.html>



