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A NON-PHARMACOLOGICAL INTERVENTION PROTOCOL TO REDUCE DEMENTIA-RELATED AGGRESSIVE BEHAVIORS IN OLDER NURSING HOME RESIDENTS IN LEBANON: A PROPOSAL FOR THE DESIGN, IMPLEMENTATION, AND EVALUATION OF INDIVIDUALIZED MUSIC THERAPY

by
TALA YASSER EL NABOULSI

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ABSTRACT
OF THE PROJECT OF

Tala Yasser El Naboulsi for Master of Science in Nursing
Major: Nursing

Title: A Non-Pharmacological Intervention Protocol to Reduce Dementia-Related Aggressive Behaviors in Older Nursing Home Residents in Lebanon: A Proposal for the Design, Implementation, and Evaluation of Individualized Music Therapy

As the older adult population in Lebanon is expected to double to 20% in 2030 so is the risk of dementia which is characterized by a gradual and progressive cognitive decline and commonly affects older adults. Therefore, dementia is expected to become a public crisis in Lebanon within the next 20 years. Dementia is associated with behavioral and psychological changes that significantly affect the patient's quality of life. Aggression, which is a common behavioral dysfunction associated with dementia, is usually managed with atypical antipsychotics which may increase mortality risk. Hence, there is a need to explore a non-pharmacological approach to manage dementia-related aggression that does not pose a high risk to patients. Studies have shown that music therapy is a promising non-pharmacological intervention that has a significant effect on reducing dementia-related aggression. The objective of this project is to design, implement, and evaluate an individualized music therapy protocol with the goal of reducing dementia-related aggressive behavior frequency in a Lebanese sample of older adults residing in a nursing home. This project introduces an Individualized Music Intervention protocol to manage agitation and aggression in dementia patients, adding to the intervention Middle Eastern music to accommodate Lebanese culture. The implementation and evaluation plan for this intervention is described. This intervention will take place in a Lebanese nursing home and will target older adults.

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CHAPTER I

INTRODUCTION

The older adult population worldwide is increasing fast (WHO, nd). The number of older adults in Lebanon aged 65 and older was estimated in 2012 at 10% and is expected to double by 2030 (Huijer et al., 2019). With the rapid increase in population, the incidence of dementia is also on the rise since it's a prevalent syndrome that is seen in older adults (Dyer et al., 2018). Dementia is associated with behavioral and psychological symptoms (BPSD) including aggression in 90% of the cases (Brodaty et al., 2018; Tampi et al., 2022). BPSD may negatively impact the well-being of older adults and may result in greater functional impairment, higher emotional distress, the need for specialized care due to the challenging nature of their symptoms and hence may require institutionalization and frequent hospitalization, increased risk of abuse, and consequently decreased quality of life (QoL) (Aigbogun et al., 2019; Bessey & Walaszek, 2019). BPSD can be managed by pharmacological and non-pharmacological interventions.

Dementia-related aggression is commonly managed with atypical antipsychotics.Until May 2023 there weren't any FDA approved medications for this purpose (Ijaopo et al., 2017; Dimitriou et al., 2018; Devanand, 2023). Currently, the only approved antipsychotic for the management of agitation in older adults with dementia by the FDA is Brexpiprazole (Devanand, 2023). Atypical antipsychotics have detrimental side effects in older adults leading to an increase in the mortality rate (Nørgaard et al., 2022). Given the harmful side effects of atypical antipsychotics, non-pharmacological interventions are now recommended as first-line treatment for BPSD by many associations such as the National Institute for Health and Care Excellence

(NICE), the American, Canadian, and European Association of Geriatric Psychiatry (Ijaopo et al., 2017; Dyer et al., 2018). Non-pharmacological treatment includes various methods such as aromatherapy massage, physical activities, and music therapy (Wang et al., 2019). Individualized Music Therapy, a non-pharmacological intervention, has been shown to have a soothing effect on patients resulting in stress reduction and attaining a state of calmness and as a result reducing aggressive behaviors (Pedersen et al., 2017; Bessey & Walaszek, 2019; Isaac et al., 2021).

Despite the fact that dementia is expected to become a health crisis in Lebanon it has not been adequately addressed by social and health authorities (Phung et al., 2017). Furthermore, there is scarce information about BPSD management in Lebanon (Yunusa & El Helou, 2020; Chaaya et al., 2017). Importantly, although Individualized Music Therapy is effective for aggressive behavior in dementia patients there is no evidence that it is being implemented in nursing homes in Lebanon. Therefore, the aim of this project is to develop an individualized music therapy protocol as a non-pharmacological intervention to reduce the frequency of dementia-related aggressive behavior among older nursing home residents living with dementia in Lebanon.

CHAPTER II

LITERATURE REVIEW

A. Aging and Dementia Prevalence

According to the World Health Organization (WHO), the proportion of people aged 60 and older is increasing rapidly (WHO, nd). It was estimated in 2019 that the number of people aged 60 and older was one billion, which will increase to 1.4 billion by 2030 and double to 2.1 billion by 2050 (WHO, nd). The number of older adults in Lebanon aged 65 and older was estimated in 2012 at 10% and is expected to double by 2030 (Huijer et al., 2019). A prevalent syndrome that is seen in older adults and has become a concern worldwide is dementia (Dyer et al., 2018). Dementia is more likely to occur in older adults, as age is considered a risk factor (Kandiah et al., 2019). Currently, there are more than 55 million people with dementia worldwide and 10 million new cases are reported yearly (WHO, 2023). Furthermore, it is estimated that by 2050 the prevalence of dementia worldwide will increase to 131.5 million (*World Alzheimer report, 2015).* Lebanon falls within the upper range of the global estimates with a percentage of 7.4, this is in line with the latest updates from the World Alzheimer's report 2015 (Phung et al., 2017). A study on dementia prevalence in the Arab world found that the highest rates of dementia in individuals over 60 years were in Lebanon (Qassem et al., 2023). Dementia is one of the major causes of disability and dependency and is the seventh leading cause of death among older adults globally (WHO, 2023). As dementia advances, patients undergo different behavioral and psychological changes that are challenging to both the patient and the caregiver (Dyer et al., 2018).

B. Dementia and Dementia-Related BPSD

Dementia is a syndrome that affects the brain's ability to function properly (Malik et al., 2022). This condition is characterized by a progressive decline in cognitive abilities, such as memory loss, and difficulties with reasoning and problem-solving, consequently interfering with everyday tasks and leading to disability, dependency, and mortality (Malik et al., 2022). Dementia is classified as a neurocognitive disorder (NCD) in the Diagnostic and Statistical Manual of Mental Disorders Fifth and most recent edition (DSM-5) (American Psychiatric Association & American Psychiatric Association, 2013, p. 591). According to the DSM-5 criteria for diagnosing dementia, a significant decline in one or more of the following cognitive domains must be evidenced (American Psychiatric Association & American Psychiatric Association, 2013, pp. 593 - 595): (1) complex attention: sustained attention, divided attention, selective attention, and processing speed. (2) Executive function: planning, decision-making, working memory, feedback response, error correction, overriding habits, and mental flexibility. (3) Learning and memory: immediate memory, recent memory (including free recall, cued recall, and recognition memory), and long-term memory. (4) Language: expressive language (including naming, word finding, fluency, grammar, and syntax), and receptive language. (5) Perceptual-motor: abilities subsumed under the terms *visual perception, visuo-constructional, perceptual-motor, praxis, and gnosis.* (6) Social cognition: recognition of emotions and theory of mind.

Dementia is a progressive and incurable illness, and as it progresses, almost 90% of patients experience BPSD across all stages of dementia (Brodaty et al., 2018; Tampi et al., 2022). BPSD known as neuropsychiatric symptoms is identified as depression, agitation (restlessness, disruptive vocalization, pacing, rejection of care, and arguing),

wandering, aggression, psychosis such as delusions and hallucinations, apathy, sleep disturbances, and disinhibition (social and sexual inappropriate behaviors) (Gerlach & Kales, 2018). Furthermore, agitation is defined as "Inappropriate verbal, vocal, or motor activity that is not judged by an outside observer to result directly from the needs or confusion of the agitated individual" (Pedersen et al., 2017). Cognitive decline alone cannot explain the reason patients with dementia experience BPSD, and there is no single etiology for BPSD, instead, various determinants have been identified as contributory factors (Kales, et al., 2015). Those determinants can be classified as (1) neurobiological disease factors, (2) acute medical illness, (3) unmet needs, (4) pre-existing personality and psychiatric illness factors, (5) caregiver factors, and (6) environmental factors (Kales, et al., 2015).

BPSD can be distressing to patients and may affect them negatively resulting in greater functional impairment, decreased quality of life (QoL), higher emotional distress, frequent hospitalization, increased risk of abuse, and decreased survival (Bessey & Walaszek, 2019). Patients with BPSD often require specialized care due to the complexity and challenging nature of their symptoms (Aigbogun et al., 2019). Hence, patients often require institutionalization and pharmacological intervention (Aigbogun et al., 2019). This may contribute to early placement in long-term care facilities such as nursing homes, resulting in increased cost of dementia care for patients, caregivers, and the healthcare system (Aigbogun et al., 2019). Aigbogun's study assessed the cost over 17 months for caring for dementia patients with BPSD versus those without BPSD, and the costs were significantly higher ($42,284 vs. $32,640) (Aigbogun et al., 2019).

BPSD is often managed with pharmacological interventions posing a great risk to the patients (Brodaty et al., 2018). Although currently there are no U.S. Food and Drug Administration (FDA) nor European Medicine Agency (EMA) approved treatments for aggression in older adult patients with dementia, atypical antipsychotics are used for this purpose (Ijaopo et al., 2017; Dimitriou et al., 2018). However, evidence has shown that atypical antipsychotics have a certain but limited effect on BPSD (Brodaty et al., 2018). Nevertheless, atypical antipsychotics are associated with significant harmful side effects posing a great risk to older adults' health (Brodaty et al., 2018). Some side effects of atypical antipsychotic drugs include cognitive decline, cerebrovascular events, social withdrawing, QT interval prolongation (seen on the electrocardiogram), metabolic disturbances, orthostatic hypotension, and sedation that may increase the risk of falls, osteoporosis, seizures, and increased mortality rate (Brodaty et al., 2018; Nørgaard et al., 2022). Older adults taking atypical antipsychotics may have higher mortality rate due to several factors, including the dosage, polypharmacy, increased cerebrovascular events such as stroke, metabolic disturbances, age-related changes in pharmacokinetics and pharmacodynamics that lead to increased sensitivity to drugs and their side effects, and finally increasing the risk of fall resulting in the harm of the patients (Phiri et al., 2022). Therefore, non-pharmacological interventions are increasingly gaining recognition globally and now are recommended as first-line treatment for BPSD by the National Institute for Health and Care Excellence (NICE), the American, Canadian, and European Association of Geriatric Psychiatry (Ijaopo et al., 2017; Dyer et al., 2018). However, when non-pharmacological interventions are not feasible due to emergencies such as imminent danger to a patient's safety, pharmacological intervention becomes the first-line treatment (Ijaopo et al., 2017).

C. Non-pharmacological Interventions to Manage BPSD

Non-pharmacological interventions include a wide variety of methods. These interventions were divided by (Wang et al., 2019) into three categories; sensory, cognition, and movement-oriented therapy interventions. Each category has several types of therapy, a) sensory-oriented therapy includes music therapy, snoezelen therapy, and aromatherapy among others, (b) cognition-oriented therapy includes simulated presence therapy, reminiscence therapy, and cognitive stimulation therapy, (c) movement-oriented therapy includes exercises and outdoor activity therapy. Non-pharmacological interventions aim to improve or maintain the patient's cognitive function, manage behavioral symptoms, and enable the patient to continue performing the activities of daily living (Berg-Weger & Stewart, 2017). Non-pharmacological interventions have been proven to be more cost-effective than pharmacological treatment with no side effects (Berg-Weger & Stewart, 2017). Music therapy (MT) and Individualized Music Therapy have gained significant attention among other types of therapies due to their positive effect on aggressive behavior and other BPSD (Gaviola et al., 2020).

D. Individualized Music Therapy

Music therapy in general is a form of therapy that is used to tackle the physical, cognitive, emotional, and social needs of individuals (Bleibel et al, 2023). A systematic review and meta-analysis of eight studies on the MT effect on cognitive function, QoL, and depressive state showed that although verbal communication in some people with advanced dementia is no longer possible, patients can still enjoy and respond to music (Moreno-Morales et al., 2020). From the eight studies, three studies about the effect of

MT on QoL were analyzed and the results suggested a positive effect on the QoL of patients after the completion intervention (SMD = -0.36, 95% CL: -0.62, 0.10). It was hypothesized that MT alters brain function and improves cognitive areas such as the neural mechanism for speech, memory, learning, and attention (Moreno-Morales et al., 2020). Furthermore, music can provoke sensations of welfare and pleasure by activating subcortical circuits, the emotional reward system, and the limbic system (Moreno-Morales et al., 2020). MT is considered a strong stimulus for neuroplastic changes (the ability of the nervous system to change its activity in response to a stimulus) and could decrease neuronal degeneration by enhancing cerebral plasticity and inducing the formation of new connections in the brain (Moreno-Morales et al., 2020).

MT can be delivered through one of two techniques; active music in which patients participate actively by singing, clapping, and dancing, and passive music (receptive music) in which patients listen to music (Bleibel et al, 2023). On the other hand, Individualized Music Therapy is a passive form of music therapy where patients passively listen to live or recorded music (Pedersen et al., 2017). Individualized Music Therapy is defined as "Music that has been integrated into the person's life and is based on personal preference" (Gerdner, 2021). According to the evidence-based protocol of Individualized Music Therapy for elders with dementia, a personalized music playlist is created based on each patient's music preference (Gerdner, 2021). The playlist is created using The Assessment of Personal Music Preference Questionnaire APMPQ to assess patients' music preferences (Gerdner & Schoenfelder 2010). The APMPQ helps specify the type of music, specific song titles, performers, preference for instrumental or vocal music, and type of instrument (Gerdner, 2021). The Individualized Music playlist can be implemented by nurses, activity staff, and other healthcare professionals in

various settings (e.g. long-term care, acute care settings, and community settings) (Gerdner, 2021). Individualized music that incorporates patients' tastes, cultural differences, and personal memories is shown to improve attention and stimulate memories, verbalization, and emotions, thus providing a soothing effect that helps in stress reduction and attaining a state of calmness and greater relaxation (Pedersen et al., 2017; Isaac et al., 2021). The advantage of Individualized Music Therapy lies in its non-invasive characteristics, the lack of side effects, cost-effectiveness, ease of implementation, and the ability to manage multiple symptoms at once (Bleibel et al, 2023). MT was recently listed as one of the most promising non-pharmacological interventions for BPSD (Bessey & Walaszek, 2019). This study determined that MT was the most effective non-pharmacological intervention for reducing aggressive behaviors in patients with dementia using the Neuropsychiatric Inventory questionnaire (NPI) (12 behavioral and psychological symptoms questions, with 7-8 sub-question for each), the NPI score after music therapy ($M = 5.15$, $SD = 1.45$) was significantly lower compared to aromatherapy massage ($M = 6.1$, $SD = 1.75$, $p = 0$) and physical exercise ($M = 6.9$, $SD = 2.11$, $p = 0.003$) (Dimitriou et al., 2018). Along with reducing BPSD, MT has an additional significant objective: reducing the use of antipsychotic medication in nursing homes (Bakerjian et al., 2020). Bakerjian's large prospective study which included 4107 residents, concluded that music therapy (listening to music) resulted in a decline in the use of antipsychotics by about 11%, antianxiety medications by 17%, and antidepressants by 9%, in addition, aggressive behaviors were declined by 20%, and depressive symptoms by 16% (Bakerjian et al., 2020).

The choice of Individualized Music Therapy for the management of dementia-related aggressive behavior for this project is based on the available literature that

supports that MT is one of the most promising non-pharmacological interventions. Although music therapy has been implemented in the West, it has not been reported in Lebanon. Moreover, in this project, we are proposing to integrate Middle Eastern music into the intervention protocol.

CHAPTER III

THEORETICAL FRAMEWORK

This chapter will discuss the proposal plan for integrating and implementing an individualized music therapy protocol for older adults aged 65 and above who have been diagnosed with dementia, exhibiting dementia-related aggressive behavior, and residing in a nursing home in Lebanon. The implementation of this plan will be based on Gerdner's Individualized Music Intervention for Agitation theoretical framework and following Gerdner's evidence-based protocol of individualized music for elders with dementia.

A. Theoretical Framework: Theory of Individualized Music Intervention for Agitation (IMIA)

The theory of IMIA was based on the Progressively Lowered Stress Threshold (PLST) model developed by Hall and Buckwalter in 1987 (Petrovsky, 2014). The PLST model laid a conceptual foundation for understanding the effect of stress on patients with dementia (Gerdner et al., 2005). The PLST model (Figure 1) posits that patients with dementia have a reduced stress threshold due to their diminished ability to cope (Gerdner et al., 2005; Pickering et al., 2022). According to Hall and Buckwalter, several factors cause patients with dementia to have a reduced threshold for stress, these factors are considered stressors, and as they accumulate, they will exceed the patients' threshold for stress tolerance resulting in dysfunctional behavior (Pickering et al., 2022).

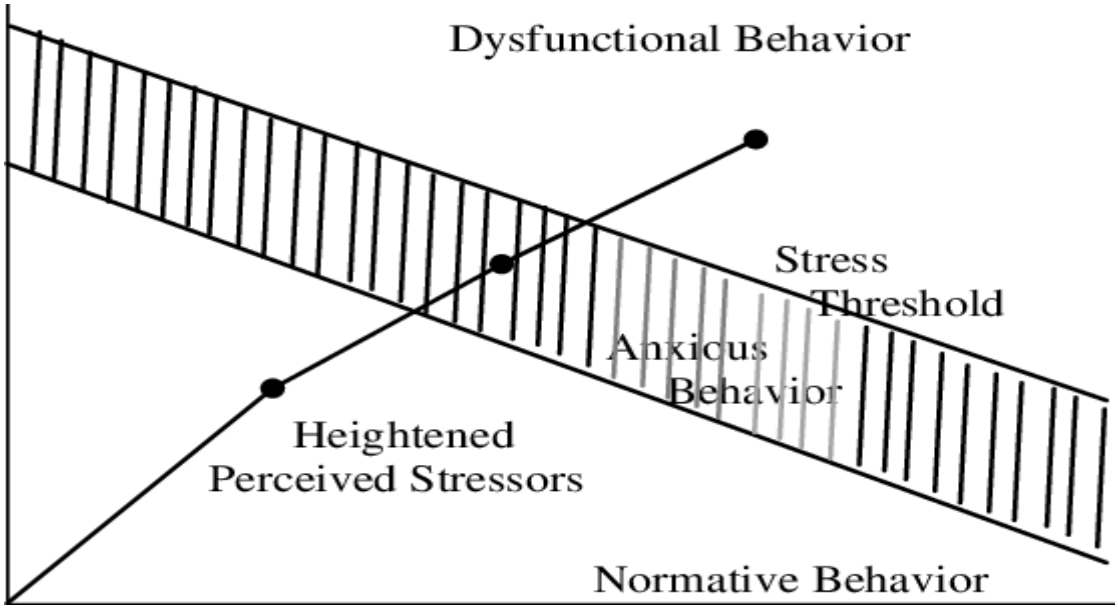

Figure 1. The progressively lowered stress threshold (PLST) model

Source: Smith, M., Gerdner, L. A., Hall, G. R., & Buckwalter, K. C. (2004). History, development, and future of the progressively lowered stress threshold: A conceptual model for dementia care. *Journal of the American Geriatrics Society (JAGS)*, 52(10), 1755-1760. https://doi.org/10.1111/j.1532-5415.2004.52473.x

The theory of IMIA (Figure 2) provides a mid-range theoretical framework to understand how music reduces the level of stress in dementia patients (Petrovsky, 2014). This theory was proposed by Gerdner who was the first to systematically investigate the use of individualized music as an intervention for agitation and aggression in patients with dementia and authored the guidelines in 1996 (Gerdner & Schoenfelder, 2010). Gerdner's study showed a significant reduction in agitation during the 30-minute presentation of individualized music and after the 60 minutes following the intervention ($t = -3.5$, $p = 0.17$) (Gerdner & Schoenfelder, 2010). After replicating the study, Devereaux also supported these findings in 1997 and later tested by other researchers who also supported these findings like Cohen-Mansfield & Werner in 1997; Thomas, Heitman, & Alexander in 1997; Clark, Lipe, & Bilbrey in 1998; and Ragneskog, Asplund, Kihlgren, & Norberg in 2001 (Gerdner & Schoenfelder, 2010).

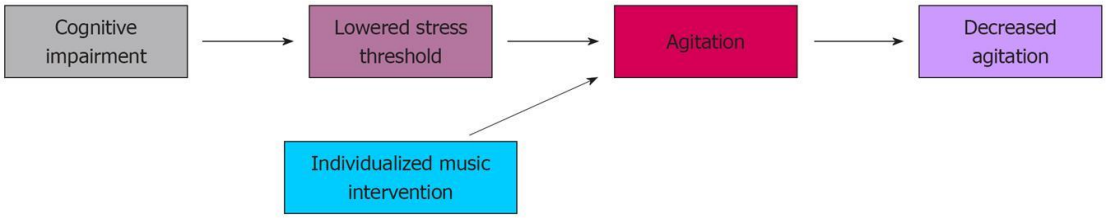

Figure 2. Mid-range theory of individualized music intervention for agitation.

Source: Gerdner, L. A., & Schoenfelder, D. P. (2010). Evidence-based guideline. Individualized music for elders with dementia. Journal of Gerontological Nursing, 36(6), 7-15. https://doi.org/10.3928/00989134-20100504-01

As shown in Figure 2, elements of this theory include cognitive impairment, progressively lowered stress threshold, agitation, and individualized music therapy. Cognitive impairment affects the patient's ability to process sensory stimuli, resulting in a decline in the patient's stress threshold, and hence, the occurrence of dysfunctional behavior such as agitation and aggression when the stress threshold is exceeded (Gerdner & Schoenfelder, 2010). Since dementia patients have a decreased ability or inability to understand verbal language, Gerdner theorized that individualized music therapy that is carefully selected based on personal preference will elicit memories with positive feelings (such as happiness, and love) and may help communicate with advanced dementia patients (Petrovsky, 2014). Hence, reducing agitation by interpreting environmental stimuli and overriding these stimuli that are confusing to patients (Gerdner & Schoenfelder, 2010).

B. Gerdner's Individualized Music Intervention for Agitation Protocol

Gardner's developed the Individualized Music Intervention for Agitation protocol taking into consideration several factors, these include (1) music perception in patients with dementia, (2) memory and dementia, and (3) music as a means of

eliciting memory (Gerdner, 1997). Those factors will be further explained according to Gerdner's theory (Gerdner, 1997).

1. Music perception in patients with dementia

Patients with advanced dementia have a decreased ability to understand verbal communication. Nevertheless, anecdotal data suggested that receptive and expressive musical abilities are preserved in patients with dementia. Therefore, it was theorized that the cognitive processing of music and language is conducted independently (Gerdner, 1997).

2. Memory and Dementia

Dementia affects the hippocampus which is essential for human memories. Memory loss in dementia is usually associated with recent events, while remote memories remain intact (this was supported by Gerdner's examples of patients remembering old memories while forgetting anything related to recent memories). Therefore, Gerdner concluded that stimuli related to the recollection of memories may be more pleasant to individuals than stimuli in the present environment, and this can be achieved by using individualized music therapy since receptive and expressive musical abilities are preserved in patients with dementia.

3. Music as a Means of Eliciting Memory

Gerdner's music intervention was also based on Oliver Sacks' assumption (a well-known neurologist) that music is a key that provides entry to memories. In addition, music can trigger either pleasant or unpleasant memories. Therefore, Gerdner grounded her intervention on eliciting positive memories by carefully selecting music that has a specific meaning to the person's life. This could be

music that was popular during the patient's young adult years, music that was used in religious practices, and music that was experienced in cultural and community contexts. Selecting the music is individualized to each person and is done through an advanced assessment of personal preference.

CHAPTER IV

DESIGN AND IMPLEMENTATION OF INTERVENTION

A. Design of the project

This project introduces Individualized Music therapy as a non-pharmacological intervention and treatment to manage dementia-related aggressive behavior. The type of music in this intervention is passive music where participants passively listen to pre-recorded music (music could be vocal that includes lyrics or instrumental music only). Music selection is individualized according to each patient's preference. Music will be played for at least 30 minutes at a specific time during the day after identifying possible temporal patterning. The intervention will be implemented three times a week for a total of 8 weeks. Residents will be listening to music in a setting where they spend most of their time. The music will be played by either nurses or the gerontology clinical nurse specialist (GCNS)

B. Obtaining institutional approval

The GCNS will meet with the institution's administration to seek approval for the implementation of the individualized music therapy protocol.

C. Training of nurses

Nurses providing direct care to dementia residents will attend an educational session delivered by the GCNS. Before starting the education session, the GCNS will test the nurses' knowledge of music therapy using a pre-test "The Individualized Music Intervention Knowledge Assessment Test" (Appendix 1). Following that test, the

educational session will be delivered through a PowerPoint presentation and will cover an overview of dementia, BPSD, and aggressive behavior types, the importance of non-pharmacological intervention, and step-by-step details on the Individualized Music Therapy protocol and its implementation. The session will be held at three different times to accommodate all staff. Staff who are not able to attend the educational session will be sent a narrated PowerPoint before starting the intervention. After the session nurses's knowledge, understanding, and confidence in implementing the evidence-based protocol will be reassessed using the post-test. Nurses will be also trained to use the different tools and equipment of this project such as the Cohen-Mansfield Agitation Inventory (CMAI), APMPQ, the audio device (speaker), the portable music player, and the headphones

D. Identification of the target population

Residents will be selected to participate in the study with the help of the nurse manager in consultation with the geriatrician in charge according to specific criteria.

Inclusion criteria: residents aged 65 and older, diagnosed with dementia following the DSM-5 dementia diagnosis criteria, exhibiting aggressive behaviors, residents must be able to hear a normal speaking voice at 1.5 feet (approximately 45cm), and a consent form signed by either residents themselves or their families if residents have severe cognitive impairment.

Exclusion criteria: residents who did not have an appreciation for music before dementia diagnosis, residents diagnosed with psychiatric disorders like schizophrenia and major affective disorders, residents with terminal illness, and residents who are in severe pain.

E. Residents assessment

1. Assessment of resident's behavior

Following Gerdner's 7th and most recent evidence-based protocol of individualized music therapy for elders with dementia, behavior assessment aims to determine the presence of agitation and detect any possible temporal patterning (Gerdner, 2021). Assessing temporal patterning is important to determine when the participant experiences the most agitation over time (for example does the patient become agitated by mid-afternoon?), and to assist in determining the most appropriate time to implement the intervention. Therefore, direct care nurses will monitor and observe residents for a week before implementing music therapy. In addition, the GCNS will monitor residents' behavior by auditing residents' records. The nurses and GCNS will use the Cohen-Mansfield Agitation Inventory (CMAI) to assess behavior (appendix 2). The CMAI will be performed at three different times, before starting the intervention to have a baseline, after 1 month of starting the music program, and after one month of the last music session.

2. Assessment of Residents' music preference

According to Gerdner's evidence-based protocol, individualized music may not be suitable for everyone (Gerdner, 2021). For the intervention to succeed, it is important to note the significance of music in a resident's life before the onset of dementia (Gerdner, 2021). The intervention will fail with residents who did not have an appreciation for music in their lives before the diagnosis of dementia (Gerdner, 2021). The residents' preferences will be determined by the nurses and GCNS using the resident's version of Assessment of Individualized (personal) Music Preference (APMPQ) 2nd Edition which is the most recent tool (Appendix 3) to determine their music preferences. The APMPQ

tool helps specify song titles, performers, preference for instrumental or vocal music, and type of instrument. The music selection will be individualized to each patient's specific preference. In case patients are unable to list their preferences due to cognitive impairment, knowledgeable family members will be approached using the family version of APMPQ 2nd edition (appendix 4) to identify patients' preferences. For this proposal intervention protocol, the music selection will include Middle Eastern music (such as Fayrouz and Sabah songs) to accommodate Lebanese cultures. During the preference assessment, nurses must make sure that participants can hear normal speaking voices at 1.5 feet (approximately 45cm), because distorted music sounds may become a source of irritation to patients. After collecting the music preferences, an individualized playlist will be set for each patient.

F. Implementation of intervention

1. Individualized Music Therapy is a form of passive music. Residents will be passively listening to recorded music only.
2. The recorded music will be played by nurses or the researcher to each participant individually for 30 minutes before the patient's usual peak level of aggression twice a week for 8 weeks. According to the evidence-based protocol, optimal effectiveness is achieved by playing the music for at least 30 minutes (Gerdner, 2021).
3. Traditionally this guideline was enforced by using an audio cassette/compact disc player, with the advancement of technology, Gerdner's latest guidelines indicated that music can be played by any available means. Therefore, music will be played through an audio device (speaker). Music that is pleasing to one person may be

irritating to another, therefore, in case other patients become agitated by the music, a portable music player and headphones will be used, taking into consideration setting the volume at an appropriate level (maximum level is 60%). A too-high volume may cause agitation or hearing loss.

4. If headphones are used, participants will be continually monitored for their tolerance towards the headset since headphones may confuse or discomfort the participants.
5. The music will be played in a setting where participants spend most of their time.
6. Participants should be observed closely during the intervention, an ongoing assessment will be conducted by the personnel playing the music to determine the participants' response to the music intervention. If the participant exhibits an increase in agitation or aggression, the music will be stopped immediately. The family will be consulted again to determine the cause of the response. An alternative music selection will be made with the family's help and played on another day. If the participant still shows increased agitation or aggression while playing the music, the intervention for that participant will be discontinued.

G. Tools

1. The Individualized Music Intervention Knowledge Assessment Test is a test that was created by Gerdner's. This tool is used as a learning tool that consists of 10 multiple-choice questions to assess the staff's knowledge about the Individualized Music therapy protocol and intervention (Gerdner, 2021).
2. The Cohen-Mansfield Agitation Inventory (CMAI). The CMAI is a questionnaire that measures 29 behaviors associated with agitation or aggression over the past 2

weeks, using a seven-point Likert scale ranging from “never” to “several times an hour” (Griffiths et al., 2020). Higher scores indicate more agitation. This tool showed an internal consistency of $\alpha = 85$ at baseline (Griffiths et al., 2020). Gerdner & Schoenfelder classified agitated behaviors in the CMAI tool into the following three syndromes (Gerdner & Schoenfelder; 2010): 1) Aggressive behaviors include physically aggressive behaviors such as kicking, hitting, biting, scratching, and spitting. 2) Physical non-aggressive behaviors such as pacing, and restlessness. 3) Verbally aggressive behaviors such as screaming and cursing. 4) Verbally non-aggressive behaviors such as negativism, complaining, and repetitious phrases.

3. The Assessment of Personal Music Preference Questionnaire (APMPQ) (patient version). The APMPQ (patient version) was designed to assist in selecting individualized music according to the patient’s preferences (Gerdner & Schoenfelder 2010).
4. The Assessment of Personal Music Preference Questionnaire (APMPQ) (family version). The family version is used when patients cannot provide their preferences due to cognitive impairment (Gerdner & Schoenfelder 2010). It is used with family members knowledgeable about the patient’s music preference.

H. Limitations and Challenges

This project is proposed to be conducted at only one facility, therefore, the results may not be generalized to all nursing homes. Moreover, this project is only addressing one type of music therapy which is passive music (music listening), and one symptom of BPSD which is aggression, therefore, further projects in the future are needed to

address active music and other BPSD symptoms. Challenges that may be encountered during the project could be multifactorial and include participants not meeting the inclusion criteria because of hearing problems, participants choosing to drop out and discontinue their participation, moving to another facility, or passing away.

CHAPTER V

EVALUATION PLAN AND BUDGET

The evaluation plan will focus on the objective of this project and aim to evaluate the individualized music intervention for agitation guidelines for persons with dementia in determining whether dementia-related aggressive behavior among older residents has been managed effectively.

The successful implementation of a clinical intervention such as "Individualized Music Intervention for Persons with Dementia" depends on a monitoring system that includes the evaluation of patients' outcomes and assessing the staff's knowledge and understanding of the intervention.

A. Evaluation of Patients' outcomes

The expected clinical outcome after the appropriate implementation of the individualized music guideline is a decreased frequency of aggressive behavior in dementia residents.

The evaluation process will be based on direct observation of residents, auditing residents' records, and using a standardized tool, the Cohen-Mansfield Agitation Inventory (CMAI). The CMAI is a questionnaire that measures 29 behaviors associated with agitation or aggression over the past 2 weeks, using a seven-point Likert scale ranging from "never" to "several times an hour" (Griffiths et al., 2020). Higher scores indicate more agitation. This tool showed an internal consistency of $\alpha = 85$ at baseline (Griffiths et al., 2020). Gerdner & Schoenfelder classified agitated behaviors in the CMAI tool into the following three syndromes (Gerdner & Schoenfelder; 2010): 1)

Aggressive behaviors include physically aggressive behaviors such as kicking, hitting, biting, scratching, and spitting. 2) Physical non-aggressive behaviors such as pacing, and restlessness. 3) Verbally aggressive behaviors such as screaming and cursing. 4) Verbally non-aggressive behaviors such as negativism, complaining, and repetitious phrases.

B. Budget

One of the advantages of The Individualized Music Therapy protocol is that it is cost-effective (Bleibel et al., 2023). The table below displays the suggested overall cost of the intervention.

Table 1. Suggested overall cost of the intervention

				total
Equipment	2 speakers $40	2 Phones $200	3 Headsets $30	$270
Stationary	Papers $10	Pens $3		$13
Beverages	Water/coffee $10	Snacks $20		$30
				$313

CHAPTER VI

CONCLUSION

In conclusion, dementia is an incurable syndrome, and as it advances patients experience many behavioral and psychological symptoms that affect their quality of life. Dementia-related aggression is one of the most troublesome BPSDs and negatively affects both the patients and the health caregivers. In the absence of a cure and an abundance of side effects of antipsychotics on older adults, researchers have increasingly focused on the use of music therapy as a non-pharmacological intervention. In this project, a plan to implement Individualized Music Intervention for agitation in dementia patients residing in nursing homes in Lebanon has been proposed. Integrating individualized music guidelines is important for managing aggressive behaviors and improving older adults' quality of life. Furthermore, this intervention is known for its low cost and safe implementation.

APPENDIX 1

INDIVIDUALIZED MUSIC INTERVENTION KNOWLEDGE ASSESSMENT TEST

INDIVIDUALIZED MUSIC INTERVENTION KNOWLEDGE ASSESSMENT TEST

1. Individualized music is defined as music that is:
   A. A preferred general category of music (e.g., classical, country/western)
   B. Designed for relaxation
   C. Based on personal preference which includes identification of specific performers and song titles
   D. Associated with the era in which the patient was a young adult

2. Which of the following supports the theoretical framework for the effects of Individualized Music intervention for agitation (IMIA)?
   A. It is believed that receptive and expressive musical abilities are preserved in individuals with ADRD long after their ability to process or express verbal language
   B. Elicitation of memories associated with positive feelings has a soothing effect on the person with ADRD, which in turn prevents or alleviates agitation
   C. Music changes the focus of attention and provides an interpretable stimulus, overriding meaningless or confusing stimuli in the environment
   D. All of the above

3. Overall assessment to determine the appropriateness of using individualized music as an alternative intervention includes all of the following EXCEPT:
   A. Hear a normal speaking voice at an approximate distance of 1 1/2 feet
   B. The person's ability to play a musical instrument or sing
   C. Assess temporal patterning in an effort to determine the most appropriate time for prescribed intervention
   D. Determine the importance of music in the person's life prior to the onset of dementia

4. Individualized music is NOT appropriate as an alternative intervention for the management of agitation in cognitively impaired persons with
   A. Increased difficulty in interpreting environmental stimuli
   B. Fatigue
   C. Pain
   D. A deprivation or lack of environmental stimuli

5. Assessment of individualized music includes all of the following EXCEPT:
   A. The ability to understand verbal language
   B. Consideration to ethnic and religious background
   C. Prior music interests (i.e., sang in church choir, played a musical instrument)
   D. Determination of specific music preferences (i.e., song titles, performers)

6. Individualized music may be used on an "as needed" (PRN) basis by:
   A. Waiting to intervene until the peak level of agitation
   B. Implementing when the person first begins exhibiting signs of increased anxiety
   C. Implementing every 3-4 hours
   D. Playing for 2-3 hours at a time

7. The following clinical outcomes factors are expected with the consistent and appropriate use of Individualized Music guideline:
   A. Decreased agitation
   B. Decreased use of psychotropic drugs
   C. Decreased use of physical restraints
   D. All of the above

8. If music is being played "free field" the person, for whom the music was intended, should be monitored as well as other persons in the immediate area.
   A. True
   B. False

9. If the person exhibits an increase in agitation:
   A. Continue to play the music, since it takes longer for someone with dementia to process music
   B. Stop the music with no further attempts to implement music
   C. Stop the music, reassess music preference, and try again using a different musical selection at a later date
   D. Increase the volume since the patient might be hard-of-hearing

10. Family members (select the correct statement):
   A. Should not be burdened with assisting in the planning and implementation of activities for the patient
   B. Have valuable information regarding the personal likes and dislikes of the patient
   C. Do not have the knowledge or skill necessary to make a meaningful contribution when care is transferred to a long-term care facility
   D. Mainly serve to increase staff's workload by being critical and demanding

APPENDIX 2

COHEN-MANSFIELD AGITATION INVENTORY (CMAI)

Date _____

Patient _____ Completed By _____

BEHAVIOR	Never	Less than once a week	Once or twice a week	Several times a week	Once or twice a day	Several times a day	Several times an hour
Pace, aimless wandering	1	2	3	4	5	6	7
Inappropriate dress or disrobing	1	2	3	4	5	6	7
Spitting (include at meals)	1	2	3	4	5	6	7
Cursing or verbal aggression	1	2	3	4	5	6	7
Constant unwarranted request for attention or help	1	2	3	4	5	6	7
Repetitive sentences or questions	1	2	3	4	5	6	7
Hitting (including self)	1	2	3	4	5	6	7
Kicking	1	2	3	4	5	6	7
Grabbing onto people	1	2	3	4	5	6	7
Pushing	1	2	3	4	5	6	7
Throwing things	1	2	3	4	5	6	7
Strange noises (weird laughter or crying)	1	2	3	4	5	6	7
Screaming	1	2	3	4	5	6	7
Biting	1	2	3	4	5	6	7
Scratching	1	2	3	4	5	6	7

BEHAVIOR	Never	Less than once a week	Once or twice a week	Several times a week	Once or twice a day	Several times a day	Several times an hour
Trying to get to a different place (e.g., out of the room, building)	1	2	3	4	5	6	7
Intentional falling	1	2	3	4	5	6	7
Complaining	1	2	3	4	5	6	7
Negativism	1	2	3	4	5	6	7
Eating/drinking inappropriate substances	1	2	3	4	5	6	7
Hurt self or other (cigarette, hot water, etc.)	1	2	3	4	5	6	7
Handling things inappropriately	1	2	3	4	5	6	7
Hiding things	1	2	3	4	5	6	7
Hoarding things	1	2	3	4	5	6	7
Tearing things or destroying property	1	2	3	4	5	6	7
Performing repetitious mannerisms	1	2	3	4	5	6	7
Making verbal sexual advances	1	2	3	4	5	6	7
Making physical sexual advances	1	2	3	4	5	6	7
General restlessness	1	2	3	4	5	6	7
Strange movements making faces	1	2	3	4	5	6	7
Total Score (add all numbers)							

APPENDIX 3

ASSESSMENT OF INDIVIDUALIZED (PERSONAL) MUSIC PREFERENCE - 2ND EDITION

Care Recipient Version
Linda A. Gerdner, Jane Hartsock, & Kathleen C. Buckwalter (2000, revised 2020)

Familiar music is often a very important part of people's lives. Please complete the following based on your personal music preference. If you need help completing this assessment, please ask a close friend, but be sure your responses reflect your perceptions

Please put a check (✓) beside the most correct choice for the following questions.
Historically, how important a role did music play in this person's life?
---- Very Important
---- Moderately Important
---- Slightly Important
---- Not Important
Does/did this person play a musical instrument? Yes/No
If yes, please specify (examples: piano, guitar).

Does/did this person enjoy singing? Yes/No
If yes, please specify (examples: around-the-house, church choir).

Does/did this person enjoy dancing? Yes/No
If yes, please specify (examples may include: attended dance lessons, participate in square dancing or Texas two-step)
The following is a list of different types of music. Please indicate the individual's three (3) most favorite types with 1 being the most favorite, 2 the next, and 3 the third favorite.
---- Middle Eastern/ Lebanese
---- Country and Western
---- Classical
---- Spiritual/Religious
---- Big Band/Swing Folk
---- Blues /Rhythm and Blues/ Soul
---- Jazz

---- Rock and Roll
---- Easy Listening
---- Cultural or Ethnic Specific (examples: Czech polkas, Ravi Shankar Indian sitar)
---- Hip Hop
---- Latin
---- Other: ----------

Please put a check (✓) beside the most correct choice for the following questions.
What form does the individual's favorite music take?
---- Vocal
---- Instrumental
---- Both
Please identify specific songs/musical selections that made this person feel happy.

Please identify the specific artist(s)/performer(s) that this person enjoyed listening to the most.

Please identify specific playlists, compact discs, audio-cassette tapes, or vinyl records contained in this individual’s personal music library.

APPENDIX 4

ASSESSMENT OF INDIVIDUALIZED (PERSONAL) MUSIC PREFERENCE - 2ND EDITION

Family or Knowledgeable Caregiver Version
Linda A. Gerdner, Jane Hartsock, & Kathleen C. Buckwalter (2000, revised 2020)

Familiar music is often a very important part of people's lives. Please complete the questionnaire based on your knowledge of your family member's music preference.

Please put a check (✓) beside the most correct choice for the following questions.

Historically, how important a role did music play in this person's life?
---- Very Important
---- Moderately Important
---- Slightly Important
---- Not Important

Does/did this person play a musical instrument? Yes/No
If yes, please specify (examples: piano, guitar).

Does/did this person enjoy singing? Yes/No
If yes, please specify (examples: around-the-house, church choir).

Does/did this person enjoy dancing? Yes/No
If yes, please specify (examples may include: attended dance lessons, participate in square dancing or Texas two-step)

The following is a list of different types of music. Please indicate the individual's three (3) most favorite types with 1 being the most favorite, 2 the next, and 3 the third favorite.
---- Middle Eastern/ Lebanese
---- Country and Western
---- Classical
---- Spiritual/Religious
---- Big Band/Swing Folk
---- Blues /Rhythm and Blues/ Soul
---- Jazz
---- Rock and Roll

---- Easy Listening
---- Cultural or Ethnic Specific (examples: Czech polkas, Ravi Shankar Indian sitar)
---- Hip Hop
---- Latin
---- Other: ----------

Please put a check (✓) beside the most correct choice for the following questions.
What form does the individual's favorite music take?
---- Vocal
---- Instrumental
---- Both
Please identify specific songs/musical selections that made this person feel happy.

Please identify the specific artist(s)/performer(s) that this person enjoyed listening to the most.

Please identify specific playlists, compact discs, audio-cassette tapes, or vinyl records contained in this individual’s personal music library.

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