A Systematic Literature Review of Music Therapy Assessments for Persons Living with Dementia

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ABSTRACT

A Systematic Literature Review of Music Therapy Assessments for Persons Living with Dementia

Mina Edward Fahmy Saad

Although several articles have been written on music therapy assessment in geriatric contexts and specifically for persons living with dementia, it seems that intake assessments are not being conducted in consistent ways and that music interventions are not being integrated into the multidisciplinary care plans of persons living with dementia. In order to lay the foundation for creating a more standardized approach to initial music therapy assessment processes for persons living with dementia, it is important to identify and better understand the assessment processes and tools that exist to date. Therefore, the purpose of this study was to conduct a systematic literature review to identify and describe music therapy assessment tools and/or processes for PLWD.

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Chapter 1. Introduction

A Brief Overview of Dementia

Dementia is a term used to indicate a range of symptoms associated with a decline in memory and other cognitive skills, which affects one's ability to perform the activities of daily living. Alzheimer's disease accounts for 60-80% of dementia diagnoses (Alzheimer's Association, 2016). Alzheimer's disease belongs to a larger group of major neurocognitive disorders that share similar clinical presentations but differ in their pathological explanations (American Psychiatric Association, 2013). The Alzheimer's Association (2016) states:

> While symptoms of dementia can vary greatly, at least two of the following core mental functions must be significantly impaired to be considered dementia: memory, communication and language, ability to focus and pay attention, reasoning and judgment, (and) visual perception (Memory loss and other symptoms of dementia, para. 1).

Worldwide, there are approximately 47 million people living with dementia, (Alzheimer's Disease International [ADI], 2016) and there are 7.7 million new cases every year (World Health Organization [WHO], 2016). This number is expected to almost triple by 2050 to 135 million if no significant advances in prevention or treatment are made (ADI, 2016; WHO, 2016).

In 2016, 564 000 Canadians, of various ages, were living with Alzheimer's disease and related dementias. It is projected that this number will soar to 937,000 Canadians by 2031. The current combined health-care system and out-of-pocket costs of dementia is estimated at 10.4 billion dollars and expected to increase by 60% by 2031 to 16.6 billion dollars (Alzheimer Society of Canada, 2016). Although families and community organizations provide various types of care and support, many of those diagnosed with dementia will eventually end up living in a long-term care facility. Based on historical growth trends, the total number of long-term care beds in Canada was forecast to grow from approximately 280,000 in 2008 to 690,000 in 2038 (Alzheimer Society of Canada, 2010).

A Brief Overview of Music Therapy and Dementia

Music therapy interventions have long been used for persons with dementia to address various domains of functioning and to improve quality of life (Ahonen-Eerikäinen, Rippin, Sibille, Koch, & Dalby 2007; Aldridge & Aldridge, 1992; Aldridge, 1995; Brotons & Koger, 2000; Bruer, Spitznagel, & Cloninger ,2007; Cevasco,2010; Gold, 2014; Mohammadi, Shahabi, & Panah, 2011; Schall, Haberstroh, & Panah 2015; Solé, Mercadal-Brotons, Galati, & De Castro 2014; Young, 2013; Ziv, Granot, Hair, Dassa, Haimov, 2007). Neuroscience research has shown that the music functions of the brain remain intact or are less affected than other domains of functioning even in the latest stages of the disease (Baird & Samson 2009; Cuddy & Duffin, 2005; Crystal, Grober, & Masur 1989). This could mean that knowledgeable use of music with people living with dementia (PLWD) may not only provide an enjoyable activity for these individuals but that it may also have implications for using music clinically, as well as in overall care. In other words, the better one is functioning musically, the better he/she may function overall (L. Young, personal communication, October 11, 2016).

This idea has implications for expanding music therapy practice and expanding the role of music therapists who work with PLWD. This in turn has implications for music therapy assessment, especially in the early stages of the disease. If maintaining or heightening music functions is important for PLWD, then gathering baseline data on how they respond to music in order to create a care plan that incorporates music seems crucial. Although several articles have been written on music therapy assessment in geriatric contexts (see Chapter 3) and specifically for PLWD, it seems that intake assessments are not being conducted in consistent ways and that music interventions are not being integrated into the multidisciplinary care plans of PLWD (Young, 2013). Given the practical and clinical importance of music for PLWD, understanding current music therapy assessment processes that exist for PLWD and identifying the strengths and gaps of these processes or tools could ultimately help to lay the foundation for development of a more standardized approach to music therapy assessment.

Personal Relationship to the Topic

I am a physician from Egypt where I trained and worked in several medical specialties, including Geriatric Medicine as a part of the undergraduate study curriculum

and postgraduate practice (2000 to 2010). I recently received recognition of my medical degree from the Medical Council of Canada MCC and the Collège des Médecins du Québec CMQ (2011-2015). From 2015 up to the present time of writing this thesis, I was doing a residency training in the Psychosomatic Branch of Medicine in Bayern, Germany working with a diverse range of clients but mainly older persons experiencing depression, grief, and anxiety. I also have a strong passion for music, which led me to pursue both pre-professional and advanced training in music therapy at Concordia University (2011 to 2017). During my practicum placements at Concordia, I had opportunities to work with clients who had dementia and I was able to witness firsthand the positive effects that music had on these clients. My experiences have led me to believe that music therapy is not being used to its full potential for PLWD, which led to my interest in the current research topic.

Statement of Purpose

In order to lay the foundation for creating a more standardized approach to initial music therapy assessment processes for PLWD, it is important to identify and better understand the assessment processes and tools that exist to date. Therefore, the purpose of the current study was to conduct a systematic literature review to identify and describe music therapy assessment tools and/or processes for PLWD. This in turn has helped to identify implications for research and practice. The author hopes that this study will serve as a useful resource for music therapy clinicians and researchers—saving them the trouble of having to locate and assess the content of publications on this important topic.

Research Questions

The primary question was: What information exists in published or unpublished scholarly literature about music therapy assessment for PLWD?

Subsidiary questions were: (a) What music therapy assessment tools/approaches exist for PLWD? (b) What processes/protocols are contained in these tools/approaches? (c) How can this information be organized to summarize strengths and gaps of current processes and tools?

Definitions of Key Terms

For the purpose of this study a music therapy assessment tool is being defined as any formal (standardized) or informal method that music therapists use to identify clients'

skills and/or needs in various domains of functioning. These may include: physical, emotional, social, communicative, spiritual, and musical domains (Curtis, Vaillancourt, & Young, 2012; Lipe, 2015; Wheeler, Shultis, & Polen, 2005). Specific types of music therapy assessments include: (a) interpretive—observations are explained in terms of theory or other frames of reference; (b) descriptive—observations provide an overall picture of a client's functional status in selected domains; (c) prescriptive— observations suggest a direction for treatment goals and objectives; or (d) evaluative—observations serve as a baseline to measure the effectiveness of the treatment interventions (Bruscia, 1998). A music therapy assessment protocol is being defined as the procedures that the music therapist uses to gather the information needed to complete the assessment. These procedures may be standardized and/or predetermined or they may be individualized according to a client's needs and responses as they emerge in a session (Curtis, Vaillancourt, & Young, 2012; Lipe, 2015; Wheeler, Shultis, & Polen, 2005).

Summary of Chapters

This introductory chapter outlines the significance and need for the current study, as well as the purpose and research questions. Chapter 2 outlines how a systematic literature review methodology was conceptualized for this study. Chapter 3 presents the results. Chapter 4 outlines limitations of the study, and presents implications for research and practice.

Chapter 2. Methodology

Design

Given that the main purpose of this study was to identify and examine existing music therapy assessment tools and assessment protocols for PLWD, a systematic literature review was deemed to be the most appropriate methodology. A full systematic review answers a clearly formulated question that systematically collects and summarizes relevant empirical evidence. A meta-analysis uses statistical methods to analyse and summarise the included studies" (Centre for Cognitive Ageing and Cognitive Epidemiology [CCACE], 2016). Many music therapy scholars and researchers have utilized various kinds of systematic reviews to organize, describe, synthesize and/or appraise quality of literature on a variety of topics (Aigen, 2008a, 2008b; Bell, 2016; Brotons, Koger, & Pickett-Cooper, 1997; Brooks, 2003; Gilbertson, 2009; Gregory, 2002; Hilliard, 2005a; Tung, 2014). The current study was delimited to a systematic *literature* review methodology in that the main focus was to identify, organize and briefly describe music therapy assessment tools and protocols for PLWD and through this process identify some strengths and gaps of these tools and protocols. The researcher did not use established quality analysis procedures to assess individual research articles nor did he attempt to integrate or synthesize findings, statistically or qualitatively (Hanson-Abromeit & Sena Moore, 2014). These are areas for future research for which the current study lays a foundation.

Data Collection Procedures

Relevant published and unpublished scholarly literature was the primary source of data in this study. The researcher conducted a keywords search in a total of 19 databases including Psych INFO, Psych Articles, ERIC, JSTOR, Google Scholar, PubMed Central (Free Journals), PubMed (Medline), ProQuest Dissertations and Theses, Medline, Psychology and Behavioral Sciences Collection, RILM Abstracts of Music Literature (1967 to Present), American Doctoral Dissertation, Mental Measurements yearbook with Tests in Print, Art Full Text (H.W.Wilson), Art Index Retrospective (H.W.Wilson), Canadian Research Index, Dissertations and Thesis at Concordia University, and Nursing and Allied Health Database and Academic search complete.

The keywords included various combinations of music therapy, assessment, dementia, and Alzheimer's disease. The criteria for inclusion were:

1. The source contained information about a music therapy assessment tool or assessment protocol for PLWD.
2. The assessment tool and/or protocol were developed by or somehow involved a certified music therapist as opposed to being developed exclusively by another professional.
3. Each source had to be credible from a scholarly perspective (i.e., peer-reviewed journal articles, academic book chapters, master's theses, doctoral dissertations).
4. Published and unpublished scholarly writings that were completed between January 1993 and December 2016.
5. Only English language publications that met the above criteria were included.

See Table 1 below for a copy of the tool used to assess the inclusion criteria for each source. This review resulted in a final total of 11 relevant sources and 9 assessment tools.

Table 1

Template Used to Assess Sources

Title of Source	Inclusion Criteria	Yes/No/ Other Relevant Details
	Topic related: Contains music therapy assessment tool and/or protocol for PLWD	
	Professional: Involved a certified music therapist	
	Credible source: Peer-reviewed journal articles, academic book chapters, master's theses, doctoral dissertations	
	Language: English	
	Publication dates: From January 1990 to December 2016	

Data Analysis Procedures

Sources that met the inclusion criteria were categorized and analyzed according to the subsidiary research questions (see Chapter 1). Relevant information was extracted and presented using summary descriptions and tables, which are presented in Chapter 3.

Chapter 3. Results

To ensure clarity and accessibility of the information, answers to the research questions were structured using tables and summary descriptions. The idea to use tables to present the information was inspired by Lipe (2015) who presented her findings in a similar manner in a chapter on music therapy assessment. Table 2 presents an overview of the music therapy assessment tools and/or protocols for PLWD that were found which met the inclusion as outlined in Chapter 2. For those familiar with the Music in Dementia Assessment Scales (MIDAS; McDermott, Orrell &, Ridder 2015), it is important to note here that this tool did not meet the criteria for inclusion in this study. It seems that this tool is generally used to assess established music therapy treatment protocols rather than to formulate a music therapy treatment plan. Tables 3 to 10 are accompanied by corresponding summary descriptions of each one of these music therapy assessment tools/approaches. Table 11 summarizes strengths and gaps of each tool/process that were identified by the various authors/articles, as well as by the current researcher. It is important to note that none of the tables contained in this paper are replicas of tables contained in the literature. In some cases, the researcher created tables to synthesize the information that he found, and in other cases, he extracted and/or re-organized relevant information from existing tables. All sources are for information contained in all tables has been noted.

Table 2

Music Therapy Assessment Tools/Protocols for PLWD

Assessment Tool Name or Description	Type of Tool	Author(s)	Year	Source(s) (Journals; Books)	Place Published
Protocol used complements MMSE	Could potentially contain Interpretative Descriptive Prescriptive and Evaluative components. Further development needed.	Aldridge	1993	Journal of the Royal Society of Medicine	UK
Residual Music Skills Test (RMST)	Interpretive Descriptive Evaluative	York	1994	Journal of Music Therapy	USA
			2000	Psychology of Music	
Music Based Evaluation of Cognitive Functions (MBECF)	Descriptive	Lipe	1995	Journal of Music Therapy	USA
		Lipe & York Jensen	2007	Journal of Music Therapy	
Geriatric Music Therapy Clinical Assessment	Descriptive Interpretative Evaluative Prescriptive	Hintz	2000	Music Therapy Perspectives	USA
Musical Assessment of Gerontologic Needs and Treatment (MAGNET)	Descriptive Prescriptive	Adler	2001	Musical assessment of gerontologic needs and treatment: The MAGNET survey	USA
Assessment in Music Therapy with Clients Suffering from Dementia	Descriptive Author indicates diagnostic potential implying interpretive and prescriptive elements.	Munk-Madsen	2001	Nordic Journal of Music Therapy,	Norway
Assessment of active music participation as an indication of subsequent music making engagement for persons with midstage dementia	Outcome measure. Evaluative	Clair, Mathews, & Kosloski	2005	American Journal of Alzheimer's Disease & Other Dementias	USA
Music Therapy Assessment of Older Adults in for Nursing Homes	Descriptive Prescriptive	Norman	2012	Music Therapy Perspectives	USA
Music Therapy Assessment Tool for people with Dementia (MTAPD)	Descriptive Prescriptive Evaluative	Mitsudome	2013	Dissertation, Temple University	USA

Summary Descriptions of Each Music Therapy Assessment Tool/Approach

Music and Alzheimer's disease-assessment and therapy: A discussion paper.

Aldridge (1993) discussed concrete and theoretical evidence with regard to how music is processed in the brain. He provided brief examples of persons who had experienced various types of neurological damage but who demonstrated music abilities, linking these to music abilities often demonstrated by persons with Alzheimer's disease. Although he pointed out that music improvisation can be used to identify and develop specific music therapy goals and strategies, Aldridge focused more on how music therapy improvisation or music production can be used to "supplement mental state examinations in areas where those examinations are [may be] lacking" (p. 95; e.g., fluency, perseverance in context, attention, concentration, and intentionality). Aldridge (1993) also suggested that this approach could be used on an ongoing basis to assess changes in functioning as the disease progresses. Table 3 outlines a sample protocol using Aldridge's approach.

Table 3

Sample Protocol Outlined by Aldridge

Domains Observed [through Improvised Music]	Examples of What to Observe
Mental and Functional Status	Improvisations using rhythmic and melodic instruments and singing (alone or in combination). Singing and playing folk songs with harmonic accompaniment.
Testing of musical skills: Rhythm, melody, harmony, dynamics, phrasing, articulation	Playing tuned percussion that demands precise movements.
Cortical disorder testing:	Alternate playing of cymbal and drum using a beater in each hand.
Visual-spatial skills and ability to perform complex motor tasks (including grip and right left coordination)	Coordinated playing of cymbal, drum, and tuned percussion using a beater in each hand.
Testing for progressive memory disintegration	Playing of short rhythmic and melodic phrases within the session, and in successive sessions.
Motivation [to sustain playing improvised music, to achieve musical goals and persevere in maintaining musical form]	Playing of a rhythmic pattern deteriorates when unaccompanied by therapist, and/or ability to complete a known melody, although tempo remains
[Musical] Intention	Patient exhibits the intention to play the piano from onset of therapy and maintains this intent throughout course of treatment
Concentration [on improvised playing and attention to instruments]	Patient loses concentration when playing, perceived decrease in musicality, and lack of precision in beating rhythm instruments
Flexibility [in musical changes]	Initially playing is limited to a tempo of 120 bpm; a characteristic pattern but is responsive to change
Ability to play improvised music influenced by previous musical training	Patient has a musical background but only of help when he perceives the musical playing; has little influence in his improvised playing
Sensitive to small changes	Musical changes in tempo, dynamic, timbre and articulation missing at first but gradually developed
Ability to interpret [musical] context; assessment of communication [in the therapeutic relationship]	Patient develops ability to play in a musical dialogue with the therapist; this demands both refined musical perception and musical production ability

Residual Music Skills Test (RMST). York (1994) developed an assessment tool to address a need identified by Lipe (1991), which was to create "standardized [music

skills] assessment and evaluation measures which are sensitive to the cognitive strengths of individuals with severe impairment" (p. 104). This was considered important as it had been noticed that music skills of PLWD seem to remain intact as other cognitive skills decline. "Preliminary data were obtained to analyze items, assess internal consistency, and determine inter-rater reliability using two independent raters. In addition, an attempt was made to explore relationships between the RMST and Folstein's Mini Mental State Examination" (York, 1994, p. 282; Folstein, Folstein, & McHugh, 1975).

Overall, results showed that RMST was suitable for use with PLWD because it appeared to measure similar domains as the Mini Mental State Examination (MMSE) while being easier to administer and often a more pleasant experience for the participants. Furthermore, the RMST may measure some unique cognitive functions as compared to the MMSE, which can yield additional important information. However, ongoing revisions and field testing of the tool were needed to determine its validity and reliability. In 2000, York published an article that examined the test-retest reliability of the RMST. "Correlational analysis revealed a test-retest correlation coefficient of .9168 indicating high test-retest reliability" (York, 2000, p. 174). In 2007, Lipe, York and Jensen examined the construct validity of two music based assessments for PLWD, one of which was the RMST. Conclusions from this study will be addressed below in the summary description of the Music Based Evaluation of Cognitive Functions (MBECF) as this tool was compared with the RMST in the Lipe, York, and Jensen (2007) study. Items needed to administer the RMST include: (a) scoring sheet, (b) taped musical items, (c) a high quality, portable tape player positioned within 3 feet of the subject, (d) a free-standing drum with one mallet, (e) two maracas, (f) paper with the written instructions, "Beat the drum," in bold letters. See Table 4 for a summary of the protocol used to administer the RMST.

Table 4

RMST Protocol

Music Task	Type of Data Collected
Item1: Recall of Song/Sing Words of a familiar song	Score range 1 to 10 (10 = recalled all words)
Item 2: Instrument Identification by using recorded instrument sounds: drums, bells, other, etc.	0-3 (0=identified no instrument sound and 3=identified all 3 of them)
Item 3:Tonal Memory/Sing phrase on "la"	0-5 (scoring details not mentioned in the source)
Item 4: Recall of Instrument Names	0-3 (0=no instrument Name recalled,3=all the 3 of them correctly recalled)
Item 5: Name titles of two familiar songs	0-2 (0= no titles named, 2= the two of them correctly named)
Musical Language (Items 6-10)	
Item 6: Sing line of song (Zipadeedoodah)	0-3 (Pitch matching 1P/ Melody contour's imitation 1P/ and sang syllables correctly 1P)
Item 7: Play maraca in rhythm	1/0
Item 8: Follow written command "Beat the Drum"	1/0
Item 9: Spontaneous singing	1/0
Item 10: Spontaneous musical behavior in response to recorded music (big band rendition of "Chattanooga Choo Choo")	1/0

Music Based Evaluation of Cognitive Functions (MBECF). Lipe (1995) conducted a study to determine the usefulness of music task performance in the assessment of cognitive functioning among older adults with dementia. The original protocol of MBECF contained 19 items which evaluated verbal, singing, and rhythmic abilities. Psychometric testing on the MBECF produced a correlation of .93, indicating high test-retest reliability. Cronbach's alpha coefficients of .92 and .93 were obtained on the first and second administrations of the test, supporting a high degree of internal consistency. Criterion validity of the test was examined via correlations between the MBECF and (1) the Mini-Mental Status Exam (Folstein,Folstein,&McHugh,1975) and (2) the Brief cognitive Rating Scale (Reisberg, Schneck, Ferris, Schwartz, & de Leon

1983).The correlations were .93, .78 and .94, respectively, which were highly significant. Based on the original item analysis, items on this measure that were functioning poorly were eliminated or revised (Lipe, York, & Jensen, 2007). However, the current researcher was unable to locate a copy of the revised protocol. The results of these studies indicate that it is possible to quantify music task performance in a way that is clinically meaningful. See Table 5 for a summary of the original test items as well as the protocol used to administer the MBECF.

Table 5

MBECF Protocol

Music/Other Tasks	Purpose of Task	Type of Data Collected
Part I:		
Gather Information on Participant's Musical Background	Gather information that will help to conceptualize Part II of the assessment process for each individual participant. Information provided by a family member/significant person.	Individual's musical training, past /present involvement with music (i.e., singing in a choir, playing in a band, attending concerts, dances, or listening to music on radio), and length of involvement in each of these activities. Eleven additional questions evaluated importance of music in individual's life using a 4-point Likert-type scale (1 = not true and 4 = very true). Qualitative data on specific music preferences also collected.
Part II:		
Listening Task: first 2 minutes of the "Gladiolus Rag" of Scott Joplin, played by Max Morath. Simple harmonic, melodic, and rhythmic structure.	Genre likely familiar but selection itself likely unfamiliar to participants. Meant to orient participant to the session and set a comfortable mood.	Descriptive data. Not scored.
Seven Verbal Response Items (interspersed with singing and rhythm tasks)	Examiner asked the participant to: Identify the season Say his\her name Recall name after singing it in a song. Recall examiner's name Choose a song to sing Suggest a name (title) for drumming task. Suggest three food items to include by name in drumming task	Scale 0 = no response 1 = with prompt or partially correct answer 2 = Fully correct answer
Four Singing Tasks	Tasks 1 to 3: required participant to learn three new simple songs Task 4: Singing a familiar song	Only the final rendition of each song is scored (Rehearsal is allowed) Scale 0 = no response 1 = eye contact with examiner 2 = attempts to sing (humming or approximating words) 3 = successful performance
Eight Rhythm Tasks	Two Improvisation Tasks Three rhythmic imitation tasks: Steady beat. Change in dynamic level. Change in tempo. Three tasks incorporating chanting and drum playing: Person's name. Alternate name. Three food items.	Score 0 = no response 1 = reflects visual or tactile interaction. 2 = reflects a partially correct response (i.e., chanting or playing a name) 3 = reflects successful performance. (i.e., imitation of examiner's model or following instructions)

Lipe, York, and Jensen (2007) examined the construct validity of two music-based assessments for PLWD, one being the RMST and the other being the MBECF. Their study appeared to support the following conclusions:

1. Both the RMST and MBECF appear to measure comparable aspects of music cognition based on strong correlations between total scores (r = .83). Differences can be attributed to the weighting of verbal and singing tasks in the two measures.
2. Both tests are strongly related to the Mini Mental State Examination, (MMSE Folstein, Folstein, & McHugh, 1975) which suggests that the three measures share an underlying construct. The MBECF has a stronger relationship with this construct than does the RMST.
3. *Music cognition* is a multidimensional construct, which contains uniquely identifiable but interrelated components.
4. Women and men score differently on the two music measures, which may indicate the need for further consideration of this variable.

Geriatric Music Therapy Clinical Assessment. Hintz (2000) developed a template/framework for a general geriatric music therapy assessment protocol with descriptive, prescriptive, and evaluative aims. Development of the template was based on the author's 6 years of music therapy clinical experience with geriatric clients in long-term and rehabilitation settings as well as on Bruscia's 1995 inventory of General Behaviors and Inventory of Music-Making Behaviors. As the protocol is developed for each individual/context, it may be conceptualized for use with PLWD. The music therapist administering the assessment may choose music tasks for the assessment based on his/her own music skills, the client's background, and the facility's organizational structure and needs. See Hintz (2000) for a full example/copy of the protocol framework she developed. See Table 6 for an overarching summary of sample assessment protocol tasks suggested by Hintz.

Table 6

Summary of Hintz's Assessment Protocol Framework

Music Task Categories	General Music Tasks
Expressive Tonal Skills	Matching pitches, intervals, and melodies when sung a capella by therapist and when played on an instrument.
	Singing familiar songs using appropriate rubato.
	Singing a song independently when prompted with a song title to assess melodic and lyric recall
	Music therapist may ask client to change lyrics to a familiar song given specific parameters (theme) or may ask the client to respond spontaneously during an improvised blues song.
Expressive Rhythmic Skills	Playing a hand drum using a mallet (in the dominant hand) in synchrony with the therapist.
	Repeating short and complex rhythm pattern when modeled by the music therapist.
	Performing a simple Xylophone ostinato accompaniment to a short, simple song performed with the therapist.
	Playing along with a song played by the therapist on a keyboard.
Receptive Tonal Skills	Assess client's perceptual skills, level of awareness, and tendency to conform by changing a song's accompaniment, volume, articulation or emotive quality.
	Discriminating tones across timbres, instruments and voice by asking client if song played on one instrument is in the same key as it was when sung
Receptive Rhythmic Skills	Discriminating simple rhythms
	Identifying a core rhythmic phrase (repeated several times)
	Identifying the beat during different styles of music
	Presenting musical stimuli in different places in relation to the client to determine levels of aural sensitivity, tracking ability and sense of perceptual space (for a less responsive client)
	Singing song with guitar in time with client's breathing; determine subtle changes in breathing (for an unconscious client)

For all areas above, the music therapist administering the assessment notes whether client's responses were: independent and quick or independent but delayed or needing prompting. Other descriptive comments can also be included on each task performance. A summary page is included at the front of the assessment, which contains

the client's biographical information, domain score summaries, treatment target areas, music therapy goals, and program recommendations.

Musical Assessment of Gerontologic Needs and Treatment (MAGNET). In 2001, Adler developed a two-part assessment tool for PLWD that gathered information pre-music therapy session and during a music therapy session. Types of activities that may be used in the session include: movement to music, singing, verbal reminiscence, naming exercises, and instrument playing. The client is assessed using Likert-type scores and other information gathered within cognitive, physical, emotional, social, and musical domains of functioning. Recommendations for music therapy intervention are made based on the results. The information that the current author has on this tool is limited to what he found in a dissertation written by Mitsudome (2013). The researcher was not able to locate a copy of the MAGNET as it was out of print at the time this thesis was being written (see limitations and implications in Chapter 4).

Assessment in Music Therapy with Clients with Dementia. Munk-Madsen (2001) developed this descriptive approach to assessment in order to systematize music therapists' observations when working with PLWD. It can also be used to identify quantitative areas of observation (e.g., duration of eye contact). Munk-Madsen suggested that the protocol take place over a minimum of 3-4 sessions and also recommended that video recording or an outside observer be utilized as part of the data collection process. Objectives for this assessment include: determining the client's resources, pinpointing problem areas, exploring possibilities that may compensate for reduced or lost functions, and identifying music therapy techniques that can be applied in a long term music therapy process or incorporated into a daily nursing routine. Munk-Madsen also suggested that this assessment may have diagnostic potential but did not indicate how this might be realized citing her own lack of experience in this area. The tool assesses six areas: (a) Musical Activities, (b) Motor Activities, (c) Emotional Responses, (d) Cognition and Mental Activity, (e) Attention and Contact, and (f) Client's Comments/Reactions to the music therapy session. The music therapist notes descriptive observations in each of these areas. See Table 7 for a summary overview of the assessment model and considerations for formulating protocols used in conjunction with this assessment process**.** The music

therapist should provide clear rationale in the assessment documentation to justify the protocol structure used for each client's assessment.

Table 7

Overview of Munk-Madsen's Assessment Model and Protocol

Area of Functioning	Considerations
Musical Activities Is the client active in: Movement, song/verbal sound, playing of instruments/ improvisation? Does the client show: Flow, variation, congruity in interplay, initiative, fantasy? Does the client engage in: Listening, receptive to tactile stimulation? Describe.	Consider personal music preferences of client from his/her younger years. Focus on areas where client can actively participate as well as listening and tactile activities. Note qualities related to client's musicality. Consider physical proximity of the therapist. To facilitate participation, client may need to share instrument with therapist.
Motor Activities and Quality The client's use of: Fine motor skills, gross motor skills, facial expression, voice in speech and singing.	Use of touch Music provides rhythmic and dynamic framework for movement Emotional stimulation can also impact motor responses
Emotional Level Is the client's emotional response: Flat, appropriate, unstable, other? How is the client's mood: Feelings of anxiety, fear, security, other?	Music can frame, maintain, and heighten client's emotional expression.
Cognition and Mental Activity How does the client function with accordance to: Verbal language, memory (recalling/recognizing), reminiscence, sense of orientation, learning, other?	Note which functions are stimulated specifically by music.
Attention & Contact How is the client's energy level: Drowsy, attentive, agitated, other? How does the client respond to different types of stimulation/approach: Verbal, physical, musical, eye contact?	Note specific kinds of music activities and stimulation that resonate with client. These serve as a "key to a shared sphere of experience" (p. 207).
The Client's Comments/Reactions to Music Therapy Session(s) Verbal responses to: Activities, togetherness, session as a whole, other. Non-verbal reactions: Voice change, bodily reaction.	

Assessment of active music participation as an indication of subsequent music making engagement for persons with midstage dementia. Clair et al. (2005)

created a 15-minute music application protocol for groups of residents diagnosed with midstage Dementia. In each assessment session, the music therapist used a system of least intrusive prompts to stimulate participation. Each session began with a greeting and ended with a farewell for each individual participant. There were a staff members trained only to give minimal verbal instructions such as “Look at me,” or “Please play/move/sing with me”. Data collection and session analysis was completed by members of the research team who were not directly involved in the sessions themselves. Researchers assessed participation level on a 4-point scale, residents engaged for the full five minutes of each session, following an initial request to participate received a score of 4 (immediate participant). Those who required two or three additional verbal cues were given a score of 3 (ready participant).Those who required three or more verbal cues received 2 points (reluctant participant).Those who did not respond even with physical guidance, received 1 point (non-participant). See Table 8 for a summary of the protocol.

Table 8

Overview of Clair, et al. Protocol

Protocol’s Tasks	Description
5 minutes of rhythm playing.	Recorded Cajun music and egg shakers.
5 minutes of flexibility physical exercises.	Accompanied by specifically composed and recorded piano music with rhythm that included: toe taps, heel lifts, knee extensions, arm extensions, hand flexions, hand supination/pronation, arm rowing and elbow rotations
5 minutes of familiar song singing without song sheets.	Team members were instructed to use only the first verse and chorus of each song and to repeat it one to two times e.g., *Home on the Range*, *Take me out to the Ballgame*, *You are my sunshine*, *My Bonnie Lies over the Ocean,* and *America the Beautiful*

Music Therapy Assessment for Nursing Home Residents. Norman (2012) created a holistic, musical, and ability-based music therapy assessment protocol for older adults in nursing homes that can be implemented in individual or group session contexts. It is meant to be practical and efficient and to contribute to residents’ interdisciplinary

care plans and not replicate information already being gathered by other assessment processes. "This tool maintains an overall behavioral approach with the observational structure and format indicated by the MDS [Minimum Data Set]. In addition, the music therapist notes any significant verbal interactions with the resident and the quality and context of the resident's music making" (Norman, 2012, p. 10). The tool contains five sections, each one containing an observational checklist: (a) music skills and preferences, (b) communication/social interaction domain, (c) cognitive/motor skills domain, (d) affective response, and (e) overall results and music therapy treatment recommendations. See the Appendix in Norman's article (2012) for a full copy of the tool. See Table 9 for a summary overview of this assessment model. Although this tool is not designed specifically for PLWD, the flexibility of the tool and the long-term care context within which it is meant to be implemented make it suitable for use with this population.

Table 9

Overview of Norman's Assessment Model

Section/Area of Functioning	Procedures	Type of Data Collected
Pre-session Information Gathering	Obtained through the facility's social services department or other contextually relevant sources.	Information related to: Medical and psychiatric diagnoses Activities of Daily Living (ADL) issues Psychological status Cognitive status Communication skills (verbal and non-verbal) Social functioning and social history Physiological status (pain, sensory issues)
Individual: Room Set Up	Resident seated. Music therapist seated but moves as needed to cue. Have all equipment needed to execute planned protocol set up.	
Group: Room Set Up	Residents seated in circle/ semicircle facing the music therapist. Have all equipment needed to execute planned protocol set up.	
Music Skills and Preferences	Interview individual and/or family (as needed). Perform selection of songs.	Qualitative data on clients' observed/expressed music preferences and responses.
Communication/Social Interaction	Provide client with opportunities to choose songs, choose instruments, and engage with others musically and socially through verbal and non-verbal means.	Qualitative data on the ways in which clients choose songs, instruments, interact with others. Note if they do not engage. Note relevant verbal, non-verbal, and/or gestural responses/interactions. Note whether actions were independent or if they required particular types of prompting.
Cognitive/Motor Skills	Provide client with opportunities to state/respond to his/her name. Provide client with opportunities to engage in song singing and instrument playing activities. Provide client with opportunities to move spontaneously and/or within the context of structured movement activities.	Behaviors to observe (check box and qualitative data): Client stated name/respond when MT stated name Musicality of musical participation (e.g., rhythm, pitch, imitation, etc.) Level of participation (may calculate frequency or percentage; e.g., how many words sung). Also note alertness level throughout session. Describe any independent movement and/or motor deficits For all behaviors above, note any visual, verbal, tactile, and/or physical cues/supports used.
Affective Response	Provide client with opportunities to engage in opening, singing, moving, instrumental play, listening, and closing music experiences.	Behaviors to observe (check box): Affect: flat/restricted/blunt/ agitated/strained/bright/other Attending behaviors: asleep/eyes open/eye contact/active participation Qualitative data: Note change in affect and during which music interventions
Summary of overall Results	Post session(s) analysis of data collected.	Qualitative summary of overall impressions. Check-Boxes for recommended services: Group vs. Individual sessions Large group vs. Small group Weekly/bi-weekly or monthly Check boxes for where particular social, musical, etc., behaviors observed during singing/movement/playing instruments or verbal interactions. Check boxes for goals: e.g., increase awareness of environment/ provide sensory stimulation/increase participation in MT activities/ decrease cues needed to participate/facilitate social interaction with others/ facilitate emotional expression or discussion.

The protocol for Norman's model is designed according to what is known about the individual's musical preferences and about his/her age/cultural cohort at large. Norman provides a specific example in her article. The basic structure within which this protocol is realized is as follows: (a) introduction and welcome (verbal and musical), incorporating client's names; (b) singing songs intervention; (c) movement intervention (using recorded music); (d) instrument playing intervention (provide choice of instruments; may use live or recorded music); and (e) closing (song) and global assessment (anything else needed not previously gathered). This protocol can be realized within an individual and/or group context and a particular client may be assessed in both of these contexts.

Music Therapy Assessment Tool for People with Dementia (MTAPD). Nordoff-Robbins trained music therapist Mitsudome (2013) used her expertise in this model of therapy to develop a music therapy assessment tool for PLWD. She also adapted the Nordoff Robbins assessment tools that had originally been developed for children. Mitsudome's assessment examines the musical functioning of PLWD in the following domains: (a) cognitive skills; (b) behavioral functions; (c) emotional reactions; and (d) social/communication skills. Each domain is assessed through observation in three categories within which specific items within each category are scores on five point scales (See Table 10). The three categories include: (a) musical responses (singing/vocalization); (b) musical responses (instrument play); and (c) non-musical responses (see Table 10). This assessment tool was intended to be suitable for an initial assessment as well as for ongoing evaluation of therapy sessions to determine if the client is showing an improvement, in a steady state or deteriorating.

See Table 10 for a summary overview of the MTAPD.

Table 10

Overview of MTAPD

Categories	Observed responses/behaviors	Domains
Scoring for observed responses/ behaviors *Note:* *0-4 point-scale* *Prompts: verbal, physical, visual, or musical* *CL=Client* *TH=Therapist*	0-desired response/behavior not observed 1- desired response/behavior occurs inconsistently with prompting 2-desired response/behavior occurs inconsistently without prompting 3- desired response/behavior consistently occurs with prompting 4-desired response/behavior consistently occurs without prompting	
A. Musical responses during singing or vocalization	1. CL comments on his/her music experiences 2. CL responds appropriately to TH questions 3. CL sings along with TH 4. CL makes an observable response when musical changes 5. CL engages in singing 6. CL initiates new musical ideas within the TH's musical structure 7. CL imitates TH's music	1. Social, Cognitive, Emotional. 2. Cognitive, Social, Behavior. 3. Social, Cognitive. 4. Cognitive. 5. Cognitive, Emotional, Behavior. 6. Cognitive, Social, Emotional 7. Cognitive, Social, Emotional.
B. Musical responses during instrumental improvisation	1. CL attempts to move body/hands to music 2. CL actively participates in music making 3. CL stays engaged in the music 4. CL imitates the TH's music 5. CL initiates new musical ideas while playing (melodic, rhythmic and or dynamics) 6. CL matches the TH's tempo 7. CL initiates new tempo in music 8. CL engages in instrumental call and response 9. CL plays instrument(s) in manner demonstrated by TH 10. CL elaborates on TH's music 11. CL holds mallet in one hand 12. CL is able to hold mallets in both hands 13. CL plays instrument with one hand 14. CL plays with both hands together 15. CL tolerates TH's hand-over-hand while he or she plays instrument(s) 16. CL changes own music to match the TH's music	1. Cognitive 2. Cognitive. 3. Cognitive. 4. Cognitive. 5. Cognitive. 6. Cognitive. 7. Cognitive. 8. Cognitive, Social. 9. Cognitive. 10. Cognitive. 11. *Motor (not indicated by the author).* *12. Motor.* *13. Motor.* *14. Motor.* 15. Behavior. 16. Cognitive.
C. Non-musical responses during the assessment	1. CL remains seated during music 2. CL makes eye-contact with TH 3. CL makes eye-contact with others 4. CL looks at instrument(s) while playing music 5. CL reminiscences in response to music 6. CL responds appropriately to TH's directions	1. Behavior 2. Social 3. Social 4. Cognitive 5. Emotional 6. Cognitive

Strengths and Gaps/Critique of Existing Music Therapy Assessment Tools/Processes for PLWD

As noted in Chapter 2, the researcher did not use standardized quality analysis procedures to assess individual research articles. This was due, in part, to the fact that the information contained in the articles was diverse and therefore difficult to compare using a standardized approach. Table 11 contains strengths and gaps/critiques related to the assessment tools and processes that were reviewed. These were identified within the sources themselves (directly or indirectly) by the researcher based on his knowledge of the gathered infromation and experience working with clients both in Music Therapy and Medical fields.

Table 11

Strengths and Weaknesses/Gaps

Practical Strengths	Practical Weaknesses/Gaps	Psychometric Strengths/Concerns
Aldridge Protocol (1993)		
1. Made a strong case for the relationship between medical and musical elements of assessment. 2. Gave clear examples of possible music experiences to be used in protocol. 3. Contains neuro-scientific components, which are relevant to current research foci. 4. Tool suggests diagnostic component in relation to testing for progression of the disease. 5. Some areas assessed exclusively through music.	1. No scoring system. Measurement component of tool structure vague. 2. Provides basis for further development of a tool and is not really a tool in and of itself.	

Practical Strengths	Practical Weaknesses/Gaps	Psychometric Strengths/Concerns
RMST (York, 1994; 2000)		
1. Quantitative data: Results easy to communicate to other health care professionals. 2. Simple to administer. 3. Non-stressful experience for the clients. 4. Music experience examples of protocol provided. 5. Clear scoring system.	1. RMST's singing assessment more extensive than other areas. Bias to expressive language scoring. 2. Item 2- 'Identification of instruments by sound' used low quality of recorded/synthesized sounds. Use acoustic instruments sounds (live or recorded) 3. Item 4- Short term memory task, rather than an overt musical task. May account for low index of discriminating power. 4. Item 5 'Naming titles of two familiar songs'– Similar to MMSE item. Needs revision to be musical. 5. Item 8- Too complicated for clients to grasp. Revision suggestions proposed: (a) Break down item into five-step instruction; or (b) make it a simpler musical task.	1. High test-retest reliability (r= .9168, p < .001). 2. Moderate correlation coefficient with the MMSE (r = .61). 3. Future analysis of whether significant differences exist between different groups of subjects (Controls vs. PLWD) (Before MT vs. After MT) 4. Concurrent validity might be addressed by comparing the RMST with the Rhythm subsection of the Luria-Nebraska Neuropsychological Battery (Golden, Sweet, Hammeke, Purisch, Graber, & Osmond, 1980), since it contains 12 musical items. 5. High inter-rater reliability (r= .96).
MBECF (Lipe, 1995; Lipe et al., 2007)		
1. No music background variables were significantly related to music task performance. 2. Results showed a strong relationship between overall cognitive functioning and music task performance. 3. MBECF has been adapted into the Korean-MBECF(2014)	1. Lipe recommended that further research is needed to refine the music performance tasks and the scoring protocol.	1. High Internal consistency (α= .85 - .95) 2. Test-retest reliability (r= .93). 3. High degree of internal consistency. 4. Reliability analysis showed α= .82. 5. The study population included only females. Gender differences should be addressed (Standley, 2000).

Practical Strengths	Practical Weaknesses/Gaps	Psychometric Strengths/Concerns
4. Assesses degree to which active music making could reveal important information about general cognitive ability in PLWD.		6. High correlation with MMSE. 7. Construct validity needs to be established (Feder, & Feder, 1998) 8. Cronbach's alpha is significantly affected by the rhythm component. Without the rhythm component it drops to (α= .68). , it is possible that the strength of these correlations is reflecting the verbal component of these tasks (York & Lipe, 2007) 9. Small sample sizes. (1995 [n=32]); (2000 [n=50])
Geriatric Music Therapy Clinical Assessment (Hintz, 2000) 1. Prescriptive treatment plan 2. Individualized: Experienced MTs can design their own musical tasks.	1. Protocol does not specify musical experiences to be used. Drawback for inexperienced therapists.	1. Accuracy of psychometric measures used need to be substantiated.
MAGNET (Adler, 2001) Unable to locate assessment protocol		
Munk-Madsen (2001) 1. Included section for client's opinion on sessions. 2. Appendix included 10 case studies examples.	1. Writing unclear. 2. Did not show how model met stated research objectives.	

Practical Strengths	Practical Weaknesses/Gaps	Psychometric Strengths/Concerns
Clair et al. (2005)		
1. Provides a model for group assessment 2. Provides model for active music participation. 3. Specifically addressed clients with midstage Dementia. 4. Protocol is easy to learn for all experience levels. 5. Sets reasonable goals for engagement.	1. Task 1-Rhythm playing: No clear delineation on how to assess participation in the presence of possible physical obstacle to Task achievement. 2. Dependence on verbal cues does not account for Aphasia, multicultural barriers or possible hearing impairment. 3. Task 2-Flexibility in physical exercises: Despite detailed descriptions of movement interventions, outcomes were not qualitatively discussed. Harder to replicate. 4. Group format can be an obstacle for participation for those with social anxiety.	1. r= .849, p < .01) 2. Multivariate analysis of variance showed that the amount of engagement did not differ significantly over time for any activity type. 3. ANOVA for repeated measures was not statistically significant. 4. Reliability and validity need to be checked 5. Sample size (n= 45). Authors did not mention if they conducted a power analysis. It is unknown if the sample size was large enough.
Norman (2012)		
1. Indicates who benefits from Music Therapy. 2. Detailed. 3. Explains room setting and pre-assessment. 4. Good tool for beginner music therapist. 5. Flexibility of too to go between 1:1 and group assessment. 6. Helpful list of information to be collected prior to initial session.	1. Section 3- Cognitive and Motor skills: Did not indicate method for calculation of accuracy percentages in data.	

Practical Strengths	Practical Weaknesses/Gaps	Psychometric Strengths/Concerns
MTAPD (Mitsudome, 2013)		
1. Suitable for mild to moderate Dementia.	1. Items 11-14: Portrayed as musical/instrumental assessment, but are purely motor. Motor is not identified within domains of assessment. 2. Unclear if there scoring is differs depending on the type of prompt used. 3. Correlations between items and desired function/ skills to be assessed not indicated. (3rd column of Table 10 is current researcher's own interpretation) 4. Some items can assess multiple domains of functioning which can affect assessment clarity.	1. Not yet tested for validity. 2. High reliability (according to Mitsudome)

Chapter 4. Discussion

In reviewing the scholarly literature, the researcher found 9 assessment tools/protocols, indicating that a notable amount of attention has been given to the topic of music therapy assessment for PLWD. However, the purpose of these assessments were somewhat varied as were their processes and protocols. Although all tools contained strengths, they all also contained gaps or areas that needed further development. It also seems that some of these tools are better suited for practice in that they can be adapted to suit various contexts, whereas others may be better suited for quantitative research inquiries. The purpose of the present chapter is to identify limitations of the current research project as well as present implications of this thesis for future research and practice.

Limitations

The purpose of the current study was to identify and succinctly describe music therapy assessment tools and protocols for PLWD, and through this process also identify possible strengths and gaps of these tools and protocols. The researcher did not use established quality analysis procedures to assess individual research articles, nor did he attempt to integrate or synthesize findings, statistically or qualitatively (i.e., meta-analysis or narrative synthesis). These are areas for future research for which the current study lays a foundation. The researcher's limited experience working as a professional music therapist in North American dementia care contexts must also be considered. Suggestions pertaining to the various tools/protocols may need to be adapted to fit practical realities of these real life contexts.

A significant publication *Musical assessment of gerontologic needs and treatment: The MAGNET survey* by Adler (2001) is out of print and the researcher was unable to locate a copy. Furthermore, York (1994; 2000) had created a revised RMST tool and the author was also unable to gain access to this version. It is also possible that the author may not have located all relevant articles on this topic. Future research, building upon this current project, should try to locate and integrate this missing information wherever possible.

Implications for Practice

This study confirmed for the researcher that music therapy assessment can be a corner stone of the whole music therapy process for PLWD. Providing a systematic way to assess these individuals' abilities and needs is essential to their quality of life, particularly given the impact that music can have for PLWD in particular. If assessments are not conducted, clinicians are essentially making educated guesses rather than fully-informed decisions regarding how music therapy might help each individual. However, the literature does not indicate that music therapy assessment processes are being used regularly with PLWD. The researcher's observations and discussions with other music therapists indicate that may not necessarily be a regular practice. This could be due to the part time nature of many music therapy positions in dementia care contexts. Given the varying kinds of assessments tools and protocols that were found, it also seems that when they are used, there is no single standardized approach.

A standardized approach to music therapy assessment for PLWD could be advantageous in a number of ways. It could help to ensure that all clients have equal access to a full range of quality music therapy services that would address a broad range of needs. Presumably this could more consistently highlight the benefits of music therapy to other members of the health care team, which would hopefully increase understanding of the service as a clinical service and justify the need for more comprehensive, integrated music therapy programs. Hintz (2000) and Isenberg-Grezda (1988) have both indicated that standardized assessment could greatly contribute to music therapy's identity as a legitimate profession. Music therapists would also have a common language that they could use to more effectively communicate amongst themselves and with others which could also lead to better quality services. This enhanced communication could also be helpful if a client transfers to another therapist or location for whatever reason. A standardized approach to assessment (initial and ongoing) could help music therapists to be accountable for their work in an efficient and ongoing way that could ultimately benefit PLWD throughout all stages of their disease.

Even more practically, it is hoped that this research might provide music therapists with a comprehensive resource in that area of assessment for PLWD that they can easily access. In this way, they can understand what approaches have been used and make decisions if any of these tools/protocols or adaptations of these tools/protocols may

be useful in their particular work contexts. It may inspire music therapists to implement different or more organized assessment approaches into their day-to-day work, which could be a great benefit to their clients.

Implications for Future Research

Although this research has some immediate clinical practice applications (as noted above), its other main purpose is to serve as a starting point for the development of a more standardized approach to music therapy assessment for PLWD, which would be achieved through additional research. This could possibly involve modifying existing tools and testing them in practice. Some tools need certain areas modified in practical ways so that they can be implemented in clinical environments that often cannot be controlled. Researchers could work to improve psychometric problems through construct validity studies. These studies could work to address cultural biases that may be inherent in some of the tools including gender issues (noted previously).

The present study used Bruscia's (1998) assessment classifications and it is important to note that other assessment classification systems exist (e.g., Chase, 2002; Pavlicevic, 1995; Wigram, 1999; Wigram, Pedersen, and Bonde, 2002). Future studies that examine music therapy assessments for PLWD may also want to consider these systems as this information may provide a more comprehensive or a different view of the strengths and or weaknesses/gaps contained in the various tools.

As previously noted, we do not know what kinds of music therapy assessments are actually being used in practice. No articles were found on the use of music therapy assessment in Canadian dementia care contexts. Surveys to find out what music therapy assessment tools and/or protocols are being used in Canadian or other international dementia care contexts would likely yield important information that would help to inform future directions for research.

The current researcher believes strongly in the potential of including music in screening tools currently being used to diagnose probable dementia. This was his original motivation for wanting to do research in music therapy and dementia. Of all the literature on tools/protocols reviewed in this study, that of Aldridge (1993) makes the strongest case for this idea. However, it seems that this idea has not progressed since that

publication. The current researcher hopes that this thesis will inspire further investigation into this area – an area that still appears to hold great potential in his opinion.

Finally, the current researcher hopes that music therapist researchers who work with other populations will be inspired by this study to conduct similar studies on assessment in their areas of interest. Overall, this appears to be an area of need for the music therapy profession at large.

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