

Music Therapy; The Assisting Power to Manage Disability
A Meta-Synthesis

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Abstract

The purpose of this meta-synthesis is to define and describe music therapy and how music therapy can assist individuals with special needs. Defined by the World Federation of Music Therapy, music therapy is “the use of music and/or its musical elements (sound, rhythm, melody and harmony) by a qualified music therapist, with a client or group, in a process designed to facilitate and promote communication, relationships, learning, mobilization, expression, organization and other relevant therapeutic objectives in order to meet physical, emotional, mental, social and cognitive needs.” (Ueda, et al, 2013). A music therapist is a trained individual who works with people with special needs to help assist them with life difficulties. Music therapy, along with other forms of treatment, can benefit an individual by allowing them the greater advantage of a comprehensive intervention program. The articles discussed in this meta-synthesis address the profession of music therapy and the effect it can have on individuals from birth to adulthood.

Introduction:

1.1 Background

Plato once said, "Music gives a soul to the Universe, wings to the mind, flight to the imagination, and life to everything." Music is a language all on its own; explicit, immanent, with no words. Music can bring people together, yet also produces a positive feeling with each person independently. Music is a therapeutic tool; it presents a nonverbal way of making contact with verbal usage to a person who may not be able to readily respond because of challenges with communication skills or minimal intellectual functioning. Hadley, et al. (2001) noted "that music can evoke responses of alertness, relaxation, satisfaction, self-confidence, and enthusiasm; create a condition wherein the client can reveal problems, feelings, and thoughts; help to uncover unconscious attitudes or hidden memories and feelings."

Music therapy is a practice that utilizes sound and music to boost physical and mental health. Defined by The American Music Therapy Association, music therapy is "the prescribed use of music by a qualified person to effect positive changes in the psychological, physical, cognitive, or social functioning of individuals with health or educational problems." (Patterson, 2003) A music therapist is a trained individual to carry out strategies and to help assist an individual in a functional area through musical experiences. The goal is that these individuals can use the skills they learn through music therapy to be used in other areas of their life (i.e. putting a song to a sequence of how to brush your teeth correctly; behaviorally or socially to help an individual within a group setting, etc.). A certified music therapist who thoroughly assesses the distinct needs of an individual, which is called the pre-treatment process, commonly oversees

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music therapy. An initial assessment takes place to consider current health, medical treatment, family and social networks, cognitive functioning, emotional and psychological needs, and any musical background the client may have; this helps the music therapist come up with an individualized and inclusive treatment plan. Goals for music therapy treatment are intended to enhance social, cognitive, and fine and gross motor skills.

A music therapist works with individuals who have a variety of disabilities, usually when other forms of therapy have not worked. The most referred individuals to music therapy are those with autism spectrum disorders, developmentally disabled, Alzheimer's and dementia, mental health issues, school-aged children, the elderly, behavioral disorders (ADHD), emotionally disturbed, physically disabled, speech impaired, stroke, learning disabled, substance abuse, cancer patients, and post-traumatic stress disorder. (Eriksson, 2017)

1.2 Author's beliefs and experiences

I chose to write my thesis paper on music therapy because of my background as a pianist and my educational experiences as a special education preschool teacher. There is a special place in my heart for individuals with special needs; I love to see them excel in their strengths and gain new abilities. I believe all types of therapy that assist individuals in life, no matter their level of ability, should be employed to help them succeed. As I have researched music therapy and the effect it can have on an individual, I have discovered I am a proponent of music therapy.

As a teacher who taught three years of preschool to students with special needs, I was able to observe many students in a music education setting. The students attended music class two times a week for 30 minutes each. Here they were taught to take turns, sing songs, clap to rhythm, utilize musical instruments, hear music created by playing different instruments, etc. The

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students really enjoyed music time. They were able to refine different types of skills to help them develop intellectually, physically, and emotionally such as: fine and gross motor skills, cognitive skills, speech and language, and behavioral and social skills.

Researching and learning about music therapy caused me to consider the students I worked with who have special needs. One student specifically was a three-year old who has cognitive deficiencies. I feel specific and targeted music therapy could assist him with his speech delay and his fine and gross motor skills in both private and group settings. He is shy and does not converse with the other students; he is more of an observer. He is unable to walk around the room without knocking into furniture and even other students at times. Music therapy could assist in his communication skills as he asks other students to share an instrument or having him sing along during a song. Music therapy could transform him from being merely an observer to an active participant. Music therapy could also assist him in his fine and gross motor skills by jumping and clapping to the beat, manipulating and holding any type of instrument, and being aware of his surroundings as it related to the music being played and his interaction with the other participating students.

1.3 Purpose of this meta-synthesis

The purpose of this meta-synthesis, which focused on music therapy and the effect it can have on individuals with special needs, had multiple purposes. One purpose was to research and review journal articles about music therapy and specifically the positive effect, if any, it might have on people with special needs. A second purpose was to research and review journal articles explaining how music therapy might assist a person with special needs. A third purpose of this meta-synthesis was to define music therapy. A fourth purpose was to research articles and place

them in publication type, to identify the design of the research done, who the participants are, the data sources of each article and study and to summarize those findings. My final purpose in conducting this meta-synthesis was to find and identify themes that came from these articles and connect these themes to everyday teaching with individuals and/or students who have special needs.

2. Methods

2.1. Selection Criteria

The 39 journal articles included in this meta-synthesis met the following selection criteria:

1. The articles explored issues related to music therapy and how it can assist in helping manage disability to individuals with special needs.
2. The articles explored issues related to music therapy and music and how it can assist in helping manage disability.
3. The articles were published in peer-reviewed journals.
4. The articles were published between 2000 and 2018.

2.2. Search procedures

Ancestral and database searches were conducted to locate articles for this meta-synthesis. I conducted systematic searches of one database that indexed articles related to the disciplines of music therapy, special needs, and the assisting power it can have on individuals to help manage their disability.

2.2.1. Database searches

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I conducted Boolean searches within the Educational Resources Information Center (ERIC, Ebscohost) using these specific search terms:

1. (“Music Therapy”) AND (“Special Needs”)
2. (“Music Therapy”) AND (“Effects on Life”)
3. (“Music Therapy”) AND (“Healing Power”)
4. (“Special Education”) AND (“Music Therapy”)
5. (“Music Therapy”)

The different database searches yielded a total of 39 articles that met my selection criteria (Abbott, Sanders, 2012; Baker, 2010; De Mers, Tincani, Norman, Higgins, 2009; Eriksson, 2017; Farnan, 2007; Fernandez de Juan, 2016; Gallegos, 2006; Gavrielidou, Odell-Miller, 2016; Gerrity, Hourign, Horton, 2013; Gonyou-Brown, 2016; Graf, 2013; Hadley, Hadley, Dickens, Jordon, 2001; Heikkila, Knight, 2012; Hodkinson, Bunt, Daykin, 2014; Hunter, 2009; Kentucky.com, 2015; Kern, Aldridge, 2006; Patterson, 2003; Pellitteri, 2000; Pienaar, 2010; Rickson, 2012; Ritter-Cantesanu, 2014; Ropp, Caldwell, Dixon, Angell, Vogt, 2006; Ross, 2016; Sanfi, Christensen, 2017; Schwartzbers, Silverman, 2011; Stegemoller, 2017; Stubbs, 2017; Sze, 2006; Thompson, 2012; Thompson, McFerran, 2015; Thompson, Schlaug, 2015; Tolunay, Bicici, Tolunay, Akkurt, Arslan, Aydogdu, Bingol, 2018; Twyford, 2012; Twyford, Rickson, 2013; Verrusio, Andreozzi, Marigliano, Renzi, Gianturco, Pecci, Ettore, Cacciafest, Gueli, 2014; Villasenor, Vargas-Colon, 2012; Ueda, Suzukamo, Sato, Izumi, 2013; Winter, 2015).

2.2.2. Ancestral searches

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An ancestral search is reviewing the reference lists of works that were published previously to find literature that is relevant to a person's topic of interest (Welch, Brownell, & Sheridan, 1999).

2.3. Coding procedures

I refined a coding form to categorize the information presented in each of the 39 articles. This coding form was based on: (a) publication type; (b) research design; (c) participants; (d) data sources, and (e) findings of the studies.

2.3.1. Publication type

I evaluated and classified every article according to publication type (e.g., research study, review of literature, annotated bibliography, opinion piece/position paper, guide, descriptive article). *Research studies* use systematic research designs to gather and/or analyze qualitative and/or quantitative data. *Reviews of the literature* summarize and organize the important themes of preceding published works on a certain topic. *Annotated bibliographies* are a list of cited works on a certain topic with a concise summary about each, followed by a detailed paragraph that evaluates, describes, or critiques the source. *Opinion pieces/position papers* justify, explain, or recommend a particular issue; these articles could advocate or support for certain educational objectives, policy positions, philosophical ideas, or political views. *Guides* give advice or instructions discussing how practitioners might implement a particular agenda. *Descriptive articles* describe phenomena and experiences, but do not employ systematic methods to gather and analyze data.

2.3.2. Research design

Every empirical study I found was classified by research design (i.e. qualitative research, quantitative research, mixed methods research). *Qualitative* researchers use language, not numbers, to describe issues, experiences, and phenomena. *Quantitative* researchers use numbers to demonstrate their study and research. *Mixed methods* research use both qualitative and quantitative research methods within a single study.

2.3.3. *Participants, data sources, and findings*

I identified and/or analyzed the participants in each study (e.g. students with special needs, adults/elderly with special needs, people with special needs). I also identified the data sources that were used in each study (e.g. surveys, observations, interviews, focus groups, personal narratives). In the end, for each study I summarized the findings.

2.4. *Data analysis*

I used a modified version of the Stevick-Colaizzi-Keen method previously employed by Duke and Ward (2009) to analyze the 39 articles in this meta-synthesis. The first thing I did was identify statements that were significant to each article. For the purpose of this meta-synthesis, those significant statements were identified as statements that addressed issues related to (a) people with special needs; (b) music therapy; (c) the effects of music therapy; (d) music and special needs; (e) music teachers and music therapists; (f) people with disabilities. After which I made a list of non-repetitive, verbatim important statements with paraphrased formulated meanings. The paraphrased formulated meanings represented my interpretation of each significant statement. Finally, the formulated meanings from the 39 articles I collected were grouped in theme clusters or emergent themes. These emergent themes represented the fundamental elements of the entire body of literature.

3. Results

3.1 Publication type

I located 39 articles that met my selection criteria; each of these are located in Table 1. Eighteen of the 39 articles (46%) included in this meta synthesis were research studies (Abbott, Sanders, 2012; De Mers, Tincani, Norman, Higgins, 2009; Fernandez de Juan, 2016; Gavrielidou, Odell-Miller, 2016; Gerrity, Hourign, Horton, 2013; Kern, Aldridge, 2006; Pinaar, n.d.; Ropp, Caldwell, Dixon, Angell, Vogt, 2006; Ross, 2016; Stubbs, 2017; Thompson, 2012; Thompson, McFerran, 2015; Thompson, Schlaug, 2015; Tolunay, Bicici, Tolunay, Akkurt, Arslan, Aydogdu, Bingol, 2018; Twyford, Rickson, 2013; Verrusio, Andreozzi, Marigliano, Renzi, Gianturco, Pecci, Ettore, Cacciafest, Gueli, 2014; Villasenor, Vargas-Colon, 2012; Ueda, Suzukamo, Sato, Izumi, 2013). Twelve of the articles (31%) were descriptive work (Eriksson, 2017; Farnan, 2007; Gonyou-Brown, 2016; Heikkila, Knight, 2012; Hunter, 2009; Kentucky.com, 2015; Patterson, 2003; Ritter-Cantesanu, 2014; Sanfi, Christensen, 2017; Stegemoller, 2017; Twyford, 2012; Winter, 2015). Seven of the articles (18%) were opinion pieces (Gallegos, 2006; Graf, 2013; Hadley, Hadley, Dickens, Jordon, 2001; Pellitteri, 2000; Rickson, 2012; Schwartzbers, Silverman, 2011; Sze, 2006) One of the articles (2.5%) was a review essay (Baker, 2010). One article (2.5%) was a survey (Hodkinson, Bunt, Daykin, 2014).

Table 1

Author(s) & year of publication	Publication type
Abbott, Sanders, 2012	Research Study
Baker, 2010	Review Essay
De Mers, Tincani, Norman, Higgins, 2009	Research Study

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Eriksson, 2017	Descriptive Work
Farnan, 2007	Descriptive Work
Fernandez de Juan, 2016	Research Study
Gallegos, 2006	Opinion Piece
Gavrielidou, Odell-Miller, 2016	Research Study
Gerrity, Hourign, Horton, 2013	Research Study
Gonyou-Brown, 2016	Descriptive Work
Graf, 2013	Opinion Piece
Hadley, Hadley, Dickens, Jordon, 2001	Opinion Piece
Heikkila, Knight, 2012	Descriptive Work
Hodkinson, Bunt, Daykin, 2014	Survey
Hunter, 2009	Descriptive Work
Kentucky.com, 2015	Descriptive Work
Kern, Aldridge, 2006	Research Study
Patterson, 2003	Descriptive Work
Pellitteri, 2000	Opinion Piece
Pienaar, 2010	Research Study
Rickson, 2012	Opinion Piece
Ritter-Cantesanu, 2014	Descriptive Work
Ropp, Caldwell, Dixon, Angell, Vogt, 2006	Research Study
Ross, 2016	Research Study
Sanfi, Christensen, 2017	Descriptive Work

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Schwartzbers, Silverman, 2011	Opinion Piece
Stegemoller, 2017	Descriptive Work
Stubbs, 2017	Research Study
Sze, 2006	Opinion Piece
Thompson, 2012	Research Study
Thompson, McFerran, 2015	Research Study
Thompson, Schlaug, 2015	Research Study
Tolunay, Bicici, Tolunay, Akkurt, Arslan, Aydogdu, Bingol, 2018	Research Study
Twyford, 2012	Descriptive Work
Twyford, Rickson, 2013	Research Study
Verrusio, Andreozzi, Marigliano, Renzi, Gianturco, Pecci, Ettore, Cacciafest, Gueli, 2014	Research Study
Villasenor, Vargas-Colon, 2012	Research Study
Ueda, Suzukamo, Sato, Izumi, 2013	Research Study
Winter, 2015	Descriptive Work

3.2 Research design, participants, data sources, and findings of the studies

As noted previously, I located 18 research studies that met my selection criteria (Abbott, Sanders, 2012; De Mers, Tincani, Norman, Higgins, 2009; Fernandez de Juan, 2016; Gavrielidou, Odell-Miller, 2016; Gerrity, Hourign, Horton, 2013; Kern, Aldridge, 2006; Pienaar, 2010.; Ropp, Caldwell, Dixon, Angell, Vogt, 2006; Ross, 2016; Stubbs, 2017; Thompson, 2012; Thompson, McFerran, 2015; Thompson, Schlaug, 2015; Tolunay, Bicici, Tolunay, Akkurt, Arslan, Aydogdu, Bingol, 2018; Twyford, Rickson, 2013; Verrusio, Andreozzi, Marigliano,

Renzi, Gianturco, Pecci, Ettore, Cacciafest, Gueli, 2014; Villasenor, Vargas-Colon, 2012; Ueda, Suzukamo, Sato, Izumi, 2013). The research design, participants, data sources, and findings of each of these studies are identified in Table 2.

Table 2

Authors	Research Design	Participants	Data Sources	Findings
Abbott, Sanders, 2012	Qualitative	20 paraeducators who work with students with special needs ranging from 5-21 years; multiple disabilities, autism spectrum disorders	Interviews, focus group meetings, surveys to collect data	The paraeducators who completed the surveys recognized the advantages of music therapy for students with disabilities, such as student engagement, student functioning (calm and relaxed), motivated and elicited student responses, assist with negative behaviors, and teach life skills like waiting for their turn.
De Mers, Tincani, Norman, Higgins, 2009	Qualitative	3 young children (ages 5-6) with developmental delay (DD), ADHD, OCD, S/L, behavioral, Asperger's	Direct observation and behavioral data was collected	Music therapy is aimed to reduce effects on behaviors (DD, ADHD, OCD, behavioral, speech and language and Asperger's); the screaming and hitting decreased amongst the young children. Music therapy assisted in decreasing the negative behaviors that were replaced by positive behaviors, such as communication, social, and behavioral skills.
Fernandez de Juan, 2016	Qualitative	17 women who are survivors of abuse (domestic)	Direct observations; focus group meetings	This study used the Plurimodal Modal Approach (APM), which is meant to address

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			(workshops); interviews	depression, anxiety, self-esteem and recovery from domestic abuse these women went through. APM, along with music therapy, was used during group sessions. The women's self-esteem increased, as they were able to discuss their feelings during sessions; they built relationships with other women in the group. This was reported through surveys the women participated in.
Gavrielidou, Odell-Miller, 2016	Qualitative	A 45 year old man with paranoid schizophrenia	Questionnaires and surveys to collect data	The focus of the study was to expand the understanding of pivotal moments in an individual's life through music therapy, by exhibiting some of their qualities and the effect music therapy might have on them.
Gerrity, Hourigan, Horton, 2013	Mixed-method	16 children with special needs; ages 7-14	Pre-post test evaluations. Semi-structured interviews to collect data	Rather than a "one-size-fits-all" approach, Universal Design was shown to work for this study. Music therapy helped teach the students "wait time" and how to act in a positive feeling with clear expectations and directions through music therapy sessions.
Kern, Aldridge, 2006	Mixed-method	4 boys with autism spectrum disorder (ages 3-5)	Direct observation of 10 min a day over an 8 month period	This study set up a musical playground. The findings were that adaptation of the musical playground itself didn't improve social

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				interactions with the children with autism considerably. By way of direct observation, the musical playground assisted in facilitating their play and engagement with peers by being interested in the sounds and the opportunity to use instruments. Observations also showed that peer-mediated approaches helped increase peer interactions and essential play on the playground.
Pienaar, 2010	Mixed-method	19 teacher-aides/caregivers who worked with children with Down Syndrome	29-item questionnaire	Children with Down Syndrome enjoy listening to music and playing musical instruments. They are also able to express emotions and communicate through music. Children who have Down Syndrome are difficult to understand; the music therapists all felt that music could help support a child who has learning disabilities to better learn how to communicate and learn those strategies in an atmosphere where they can relax and feel comfortable.
Ropp, Caldwell, Dixon, Angell, Vogt, 2006	Quantitative	78 administrators of special education programs	Surveys with three research questions	The goal of this study was to gauge administrators of special education and their perceptions and knowledge concerning

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				the benefits and effectiveness of music therapy. Personal experience with music therapy was an indicating positive factor that administrators were more of a proponent for music therapy than those who had no experience.
Ross, 2016	Mixed-method	12 children in grades K-2 ranging from 5-9 years old with emotional and behavioral issues	Pre-post measures; data was measured via observational recording; direct observation	Research showed that while music therapy sessions were taking place, the students needed less verbal redirection during transition time right after their music therapy sessions. During music therapy sessions, observations demonstrated a decrease in inappropriate behaviors by the students; this was also displayed during teacher-led activities. Students were more engaged positively in their classroom setting. Also the teacher was noticing some carry-over of increased positive, specific behavior.
Stubbs, 2017	Qualitative	2 young children, ages 5&6, with life-threatening illnesses (cancer)	Direct observation of the two children during music therapy sessions	This study focused on attachment theory (“a specific relationship, between a child and an attachment figure who is usually their primary caregiver”) and Internal working models, IWM’s (“provide comfort in times of stress, and are used as a reference for the child’s own behavior

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				in unfamiliar situations”). Through attachment theory and IWMs a music therapist’s goal is to form a relationship with a child who has a life-threatening illness and help assist with anxiety and stress. A music therapist should focus on songs that should evoke positive memories and feelings for the child.
Thompson, 2012	Qualitative	6 young children with Autism Spectrum Disorder (ages 3-5)	Direct observation during music therapy sessions	Implementing music therapy in a family-centered structure endorses the relationship-focused systems that are typically a characteristic of music therapy practice. Parents feel that family music therapy sessions are fun and pleasurable; they also feel supported. They like that the whole family can together experience this type of therapy because they are unable with their child’s other therapy sessions.
Thompson, McFerran, 2015	Mixed-method	4 young people with Intellectual & Developmental Disability (IDD); ages 10-15	Direct observation and surveys to collect data from participants	After observing the four young people with special needs, music therapy assisted in generating better conditions that help inspire interactions and form relationships with young people who have IDD. The music therapists focused on behavioral and social goals for children with mild to moderate IDD.

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				Physical and communication goals are the focus for children with severe and profound IDD.
Thompson, Schlaug, 2015	Mixed-method	One girl with brain disorders (cognitive and motor functions); 11 years old	Direct observation; surveys to collect data	The girl in the study utilized a treatment by a music therapist called melodic intonation therapy. Through her music therapy, she taught herself how to use the undamaged regions of her brain that moderate the tonal and rhythmic aspects of communication (language).
Tolunay, Bici, Tolunay, Akkurt, Arslan, Aydogdu, Bingol, 2018	Quantitative	199 patients with injuries (cast room procedures) with anxiety, aged 18+	Evaluations of patients	Data from the evaluations demonstrated that music therapy could be a safe, non-intrusive, anxiety relieving remedy that helps alleviate pain. Music therapy also showed to decrease anxiety in patients.
Twyford, Rickson, 2013	Quantitative	4 children with special needs (ages 5-7); cerebral palsy, developmental delay, gifted, anxiety, and autism	Direct observation of the subjects while in music therapy sessions	This study showed how important a music therapist's influence could be with students with special needs; that influence can evoke responses that others have not seen in different situations. Also, music therapy can potentially enhance student development and learning. In addition, music therapy can play a critical role in education, bringing new understanding and new

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				ways of working together as a team.
Ueda, Suzukamo, Sato, Izumi, 2013	Qualitative	651 patients with dementia, ages 12 to 68; behavioral & psychological symptoms (BPSD); cognitive function	Meta-analysis and systematic review of research; literature search	This study demonstrated that music therapy could have an influence on patients with dementia; interventions that music therapists used strongly decreased anxiety. The response of the music therapy was far greater than using any other type of therapy for these patients.
Verrusio, Andreozzi, Marigliano, Renzi, Gianturco, Pecci, Ettore, Cacciafest, Gueli, 2014	Quantitative	24 people age 65+ with anxiety and depression	Surveys to collect data from participants; randomized control study/trial	Physical training (exercise) along with being exposed to music is capable of setting off an array of positive effects that can contribute to changes in both the anxious and depressive components of ones mood.
Villasenor, Vargas-Colon, 2012	Quantitative	2 students who are blind, developmental delay, mental retardation and autism spectrum disorder; ages 13 & 16	Direct observation; informal interviews with classroom teachers, occupational therapist and music therapist	The Listening Program (TLP) (a method of equipping auditory music-based stimulations for young students who are visually impaired) may certainly influence the way in which a student processes information. TLP can also enhance functional skills and the learning abilities of students with visual impairments. TLP can assist in facilitating learning and developing functional skills in a school for students with developmental disabilities and visual impairments.

3.2.1. Research design

Seven of the 18 studies (37%) used a mixed-method research design (Gerrity, Hourigan, Horton, 2013; Kern, Aldridge, 2006; Pienaar, 2010; Ross, 2016; Thompson, McFerran, 2015; Thompson, Schlaug, 2015; Ueda, Suzukamo, Sato, Izumi, 2013). Seven of the 18 studies (37%) used a qualitative research design (Abbott, Sanders, 2012; De Mers, Tincani, Norman, Higgins, 2009; Fernandez de Juan, 2016; Gavrielidou, Odell-Miller, 2016; Stubbs, 2017; Thompson, 2012). Five of the 18 studies (26%) used a quantitative research design (Ropp, Caldwell, Dixon, Angell, Vogt, 2006; Tolunay, Bicici, Tolunay, Akkurt, Arslan, Aydogdu, Bingol, 2018; Twyford, Rickson, 2013; Verrusio, Andreozzi, Marigliano, Renzi, Gianturco, Pecci, Ettore, Cacciafest, Gueli, 2014; Villasenor, Vargas-Colon, 2012).

3.2.2. Participants and data sources

The 18 research studies analyzed data collected from preschool aged students (age 3-5), school aged children K-12 (age 5-18), adults ages 18 and up, administrators and para-educators of special education, and music educators. Nine of the studies (50%) analyzed data from K-12 school aged students (age 5-18) (De Mers, Tincani, Norman, Higgins, 2009; Gerrity, Hourigan, Horton, 2013; Ross, 2016; Stubbs, 2017; Thompson, McFerran, 2015; Thompson, Schlaug, 2015; Twyford, Rickson, 2013; Ueda, Suzukamo, Sato, Izumi, 2013; Colon, 2012). Four of the studies (22%) analyzed data from adults ages 18+ (Fernandez de Juan, 2016; Gavrielidou, Odell-Miller, 2016; Tolunay, Bicici, Tolunay, Akkurt, Arslan, Aydogdu, Bingol, 2018; Verrusio, Andreozzi, Marigliano, Renzi, Gianturco, Pecci, Ettore, Cacciafest, Gueli, 2014). Three of the studies (17%) analyzed data from special education administrators and para-educators (Abbott,

Sanders, 2012; Pienaar, 2010; Ropp, Caldwell, Dixon, Angell, Vogt, 2006). Two of the studies (11%) analyzed data from preschoolers, age 3-5 (Kern, Aldridge, 2006; Thompson, 2012).

3.2.3. Findings of the studies

The findings of the 18 research studies included in this meta-analysis can be summarized as follows:

1. Music therapy and its practice can help assist people with their disability. Music therapy will not change behavior but will help assist in managing behavior. Music therapy can be adapted to help an individual with special needs learn how to meet their challenges, and how to better manage their disability.

2. Music therapists can work with music educators to know how to best meet the needs of students in school with special needs and also with older individuals. They can collaborate together as a team, along with family members, school administrators, IEP team, etc. to help an individual be successful by managing their disability.

3. Administrators and para-educators of special education need to be informed and trained on how to better work with individuals with special needs and how to effectively incorporate music therapy with a licensed music therapist and a music educator to help an individual manage their disability.

3.3. Emergent themes

Five themes developed from the analysis of the 39 articles I found for this meta-synthesis. The emergent themes, or theme clusters, are: (a) Music Therapists & Music Therapy; (b) How music therapy assists individuals; (c) Music Therapy for the Preschooler (age 3-5); (d) Music Therapy for the school-aged student (grades K-12); (e) Music Therapy and its

impact on adults (ages 18+). The five theme clusters and the formulated meanings are described in Table 3.

Table 3

Theme Clusters	Formulated Meanings
Music therapists & music therapy	<ul style="list-style-type: none"> ● Music Therapists are hired to work with all different types of individuals with special needs and disabilities. ● Music Therapists can work with not only the individual with special needs but their family also as a collaborative effort to help form mutuality. ● During children’s palliative care in hospices, music therapists work to help with emotional well being of children with life-threatening illnesses. Music therapist’s goals are to help relieve feelings of fear, pain and loss; also help the non-verbal respond in ways they would otherwise and to make opportunities for them to communicate through music. ● Some reasons for music therapy referral are: support for a child and their family, a child may like music and this can benefit them as they deal with special needs, to help alleviate symptoms of anxiety or depression, bereavement, and aiding a child or family member as they deal with special needs. ● Music therapists are able to form a trusting relationship with a child/children and their families as they offer their services to help deal with special needs. ● Music therapists do face challenges as they offer services to children with life threatening illnesses. They build a strong relationship with the children and their families; discovering ways to increase quality of life is a main goal of a music therapist. ● Music therapists can select and adapt a number of musical resources: vocal, instrumental, listening, movement, and musical drama. ● Music therapists collaborate with special education teachers to build a music environment, which will help student’s learning. ● During music therapy sessions, the music environment needs to be structured so that development of social skills can happen; this takes place during interaction of the student(s) and the therapist. Many different music activities can be used to help aide this. ● Research of music education shows that children are more interested in music education vs. another academic class. Children prefer music; a music therapist can help this happen.

	<ul style="list-style-type: none"> ● Non-musical and musical behaviors can be observed by a music therapist to help identify an individual's needs and strengths in a music therapy session; this can help assist with which types of experiences are engaging for the individual. ● Music therapy from a music therapist uses music to help improve an individual's learning and development. ● Through music, some children learn how to appropriately social interact. ● Because of music therapy sessions, individuals can eventually make gains in other areas of their lives because of the assistance and motivation that music can provide. ● Music therapists utilize the power of music to awaken emotions in an individual to help engage and motivate them in a non-threatening therapy session. ● Goals that music therapists can focus on for an individual are self-expression, self-awareness, communication, interaction, and personal development.
<p>How music therapy assists individuals</p>	<ul style="list-style-type: none"> ● All-encompassing music therapy groups allow staff and typically developing peers in mainstream schools the chance to encounter the benefits of helping individuals with special needs through shared music making. ● Interaction and social acceptance between peers and individuals with special needs can be taught by implementing structured music activities. ● Music is a great way for cultural enrichment; it's also a powerful tool to increase individual and group social skills that are essential for interaction with others. ● Group therapy music sessions can aid typically developing peers to establish relationships with individuals with special needs and help them learn to accept diversity. ● Educators can learn how to use music as a means to encourage competence and social awareness by integrating and selecting music that addresses social behavior and/or acceptance. ● During music therapy sessions with typical peers and individuals with special needs, peers are encouraged to listen and follow instructions, follow the lead of the individual with special needs, participate as much as possible so the individual will watch and mirror what is happening. ● The main goal of these sessions is to help develop the individual with special needs to respond and interact with their peers. ● Through these music therapy sessions, peers noted that individuals with special needs could do the following: enjoyed doing something different (music therapy sessions), could

	<p>make choices, were quieter, learned new things, remember more, and in some cases did better than they did in class.</p> <ul style="list-style-type: none">● Educators noted that through these music therapy sessions, individuals with special needs showed an increase in awareness, could enjoy a broader range of activities, and increase in acceptance of new activities and ideas.● Peers and adults learned a lot about students with special needs through these sessions; they also learned things about themselves.● The peers noticed that the students with special needs were happier, enjoyed being with other classmates more and were more enthusiastic.● Adults noticed a positive change in students with special needs as far as their wellbeing; they were more relaxed, enjoyed music more and how good the music therapy sessions were for them.● Inclusive music therapy groups gave more opportunities for everyone to be involved with one another, relate better to each other, learn more about one another; they also learned empathy for each other.● Paraeducators discovered that music therapy sessions and student engagement uncovered student's skills and preferences, motivated student responses, and relaxed and calmed students.● Paraeducators observed through MT sessions that students with special needs got involved in different ways; it brought out areas of the student that the paraeducator did not see in any other school setting.● Paraeducators discovered that music therapy sessions had a calming affect on the student and that the student performed better in the regular classroom after attending sessions. They were more relaxed.● The structure of the music therapy sessions had a positive effect on students with special needs; familiar routines were noted to be helpful so the students knew what would be coming next.● Music therapy also had a positive affect on the paraeducator; they felt connected with the student(s) they worked with; the student interacted with the para much more; it helped relax the paras more during their day.● Caregivers to individuals with special needs, through music therapy, see how social skills and communication develop.● Instrument playing, singing, moving, creating new music, and listening are all ways music can be used during music therapy sessions.
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	<ul style="list-style-type: none"> ● Individuals who have unintelligible speech or a language delay could benefit from music therapy sessions because the sessions help assist with emotions and expressions through singing, music making, and dancing. ● Caregivers witnessed how music therapy sessions facilitated better communication in the regular classroom with the individuals with special needs. ● Caregivers observed how music therapy is an activity that is non-threatening and the sessions happen in an environment that is emotionally safe. ● Counselors, along with music therapists, can use music to assist individuals with special needs such as stress and terminal illness, mental and physical illness, learning disabilities, and physical and sexual abuse. ● Through interactive experiences with music therapy, cognitive, developmental, and emotional needs can be addressed. ● Through music therapy activities and musical responses, a counselor can evaluate the physical health, communication abilities, social functioning, emotional well-being, and cognitive skills of individuals with special needs. ● A counselor can utilize music in many ways to help an individual with special needs such as behavior and what may lead to inappropriate patterns, mental health issues and how to help them examine personal feelings, emotional states, and make positive mood changes. ● A counselor can utilize music as a method to aid individuals with special needs that do not communicate very well to help create positive expressions.
<p>Music therapy and Preschool aged children</p>	<ul style="list-style-type: none"> ● Music therapists and music therapy can have a more positive affect on a young child by modeling acceptance and affection. This can help change a child with special needs by reframing their behavior to more positive understanding. ● Including the family in music therapy sessions with their child with special needs can have a positive effect on both. The parent is able to see their child interact where otherwise they many not. The child is able to interact during sessions naturally. ● One focus of a music therapist when working with young children with special needs is their communication, social abilities, and needs. ● One challenge for music therapists and parents is to establish an atmosphere that is positive, child-initiated, and engaging. ● The goal of music therapy sessions with the family and their child with special needs is to open the possibility for beneficial

	<p>family outcomes along with beneficial child development outcomes.</p>
<p>Music therapy and its effect on the school-aged student</p>	<ul style="list-style-type: none"> ● Music therapy can be effective in assisting students with special needs such as helping them develop skills like better communication and impulse control. ● Music therapy builds motivating and engaging conditions for young children to interact with others; this shows the need for greater unification of music therapy sessions into classrooms that have students with special needs. ● Social and behavioral goals are a main focus for music therapists when working with students with special needs. ● It is likely seen that music therapy sessions can build engaging surroundings to help motivate interplay within relationships. ● Rhythm-based strategies that music therapists can provide may possibly help students with special needs inquire more successful classroom skills that could expand their potential for learning. ● Rhythm-based strategies target creativity, self-expression, and impulse control. Other skills focused on are appropriate self-awareness, self-esteem increase, communication, and socialization. ● Studies that utilized rhythm-based strategies showed benefits with behavioral and emotional issues. Considerable decreases were seen in depression, anger and misbehaviors. Meaningful increase in child’s self-esteem was reported. ● In the educational setting, group music therapy sessions for children with behavioral/emotional problems are valuable to help increase positive behaviors. ● When intervention is put into action with young students, positive effects can be maintained. ● Research study has shown that music therapy can help address precise problem responses, screaming and hitting; it can also assist in a proper communication response, i.e. asking. ● Music therapy sessions can include song social story interactions that are set to music. ● Music therapy can help decrease unfavorable behaviors while increasing better positive replacement behaviors. ● Music therapy is not always evenly effective for all children with special needs. ● As scientists study more about music and its effect on motor and cognitive functions, therapies can be tailored to help target dysfunctions or specific brain injuries. ● A positive response to music can open the path to treatments that assist children with autism. They can gain motor skills,

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	<p>acquire social and language skills, and engage more with others.</p> <ul style="list-style-type: none"> ● Music stimulates areas in the brain, which relate to thinking in social ways. ● When working with children with special needs, a music therapist focus is to locate songs or song styles that help stimulate feelings of comfort when children are stressed. ● Songs themselves are not what helps during music therapy sessions. Memories and feelings that relate to the song should be the focus point. ● Music can be used to bolster creativity, wellness, and originality ● A music therapist can use four specific types of musical experiences aimed to meet an individuals identified needs: receptive, composition, improvisation, and re-creative. ● For the past 20 years the research about music therapy has seen steady growth. The research has focused on the effect of music to individuals with special needs. ● Music contributes to the help of those with speech and language impairments to facilitate language development. ● Specific strategies used during music therapy sessions were repetition, increased response time, and student choice. These assisted in music learning and increased the student’s engagement during therapy. ● During music therapy sessions, giving clear expectations and directions, creating a positive learning environment, and implementing a behavior plan has shown to have a positive impact on learners. ● Music therapy has been shown to have a positive effect on children who have suffered through trauma. It helped them communicate their anger and/or grief. ● Research has shown that music is beneficial for the brain; it can help the brain function more efficiently and grow larger. ● Music therapy helps assist in supporting student development and learning. ● Students with special needs who attended music therapy sessions were able to increase peer interactions and friendships; it also helped increase verbal communication. ● Student’s self-esteem and confidence increased during music therapy sessions.
<p>Music therapy and its impact on adults</p>	<ul style="list-style-type: none"> ● The purpose of music therapy is to evoke changes in behavior in a patient with disabilities. These changes are most likely based on alterations in the brain.

	<ul style="list-style-type: none">● In brain studies and the affect music therapy can have on the brain, vast music experience and training can lead to changes in the brain in motor and auditory processing.● In adults whose memory has faded, music that is familiar to them from their childhood and brings happy memories helps them cope better with their disabilities.● Research shows that music therapy has a considerable positive effect on cancer and chronic pain.● As far as chronic pain in adults, music therapy can assist in therapeutic reduction of the following: emotional distress that is caused by pain, the use of anesthetic, and self-reported pain.● Singing and listening intervention during music therapy had an effect on anxiety, depression, and behavior.● Studies have shown the engaging feelings that music can invoke can assist in activating neurons in our brains.● Music therapy can have more of an effect on a person than pharmaceutical drugs.● Music therapy is appropriate to help treat adults with psychiatric illnesses.● In the psychiatric field, music therapy has been shown to be effective to help those with cognitive, communication, emotional and social rehabilitation.● Music therapy is a non-intrusive, drug-free, anxiety relieving, and safe treatment for adults under stressful conditions.● Music therapy has been used as a treatment to help treat the following symptoms in adults: anxiety, stress, low self-esteem issues, and identity crisis.● Music therapy along with physical training in adults has positive effects, which help reduce anxious and depressive feelings.
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4. Discussion

In this section I have summarized the major themes that emerged from my analysis of the 39 articles included in this meta-synthesis. These emergent themes were then connected to what I have read and learned about music therapy.

4.1. Music therapists & music therapy

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Music therapy was traditionally designed to help improve learning and change behavior when working with individuals with special needs. Music therapy sessions can be therapeutic environments that help facilitate interpersonal interactions and socialization between a music therapist and an individual with special needs. The sessions are geared towards helping with needs such as communication, social, and behavior. Sessions can also help impact the well-being of an individual and promote self-expression.

A music therapist needs the proper education in therapeutic processes to be able to create a therapeutic partnership that is professional with an individual they work with. A music therapist's clinical approach should be to emphasize productive and positive behaviors of an individual; this can often be found through the experiences of making music. During music therapy sessions, a music therapist can focus on a number of functions for an individual; i.e.: improving language and articulation (speech therapy), gross motor activity (physical therapy), fine motor activity (occupational therapy), formulation of concepts (educational) and control of the impulses (psychological counseling). Their focus for therapy should be on nonmusical skills (i.e. social, motor, communication, and cognitive) for the individual to engage in musical activities and experiences. A trained music therapist implements strategies to help strengthen an area of function for an individual, which is done by participation in musical experiences. When considering an individual for music therapy services, a music therapist should determine the individual's developmental level, their knowledge of music at any level and the individual's sensory profile; are they afraid of loud noises, do they like sounds made from musical instruments, etc.

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Who can benefit from music therapy services? Students, peers, educators, other therapists, administrators, and parents can. Through consultation, direct services, or in-service trainings, a music therapist can offer strategies and techniques to the classroom teachers, classroom aides, and music educators to implement with challenging students. Doing so could help prevent burnout and possibly improve overall mood in the classroom, especially for special education teachers. A music therapist can discuss with other service providers who work with children with special needs to adapt experiences or musical equipment that can be included in other therapy sessions. This could possibly lead to additional growth for the individual in their other areas of related services and reduce the need for other therapies. Parents can be kept up to date on their child's progress through reports that include their child's growth in music therapy sessions and acclimate those strategies in their own home to use with their child. When working in a group setting, a music therapist can adapt strategies and techniques to help the students with their various ability levels.

Eriksson (2017) defined four specific types of experiences with music; these methods define what the individual is accomplishing in relation to music: receptive (or listening), composition, improvisation, and re-creative (or performance). Receptive methods are musical experiences where the individual takes over the role of a listener. The individual is to respond to what is being heard overtly (external and observable) or covertly (internal and unobservable). Receptive methods can include imaginal listening or song discussion. Compositional methods are described as the patient, by themselves or with a group, to develop personal opinions or ideas and create lyrics for a song. Clients can write a song of their own or they can use a previous song and change the lyrics to better fit their feelings. Improvisational methods are the music therapist

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and client spontaneously making music through the use of instruments, vocalizing, or the use of their bodies, like clapping or stomping. With improvisational methods, music is formulated, created, or composed with little preparation. Re-creative experiences look like a music lesson or a performance; the target of these experiences is always on distinct clinical goals like improving attention, developing sensorimotor or memory skills, or improving group interaction skills. The music therapist is constantly looking for musical experiences to challenge an individual in a specific way and/or implement an exceptional opportunity for progress and improvement.

4.2. How music therapy assists individuals

Paraeducators, those who are hired to work one on one with a student with specific special needs, in one research study were asked to take part in answering questions, observing, and participating in music therapy sessions with the student they worked with. The reason for this study was to assess what paraeducators perception was and what they could possibly gain from assisting in music therapy sessions. The paraeducators were asked, when the music therapy sessions were over that they attended, the following: what did they learn about their students through observation of student engagement during sessions, what were their personal gains by taking part in the sessions, and what did they see as collaborative moments during the sessions that could benefit their student? The results were as follows. The paraeducators observed that student engagement was higher during music therapy than in the classroom, the students were more calm and relaxed, impact on student functioning improved during sessions. The rhythm patterns of music therapy aided students in the classroom when it came time for math patterns (i.e. ABC, AABB, etc.). The students were able to connect those music patterns and relate them to their math patterns. Non-verbal students participated during sessions, such as laughing,

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clapping, and using words. Students, who were usually disruptive in the classroom, were generally calm and participated in music therapy sessions; they were more relaxed after the sessions. Music therapy sessions also had an impact on the paraeducators; being able to participate in music therapy sessions helped strengthen the quality of his/her day by feeling relaxed and enjoyment. Seeing their student participate in music therapy brought them excitement; they didn't get to see this side of their student in the classroom. They felt more connected to their student, as they were able to use strategies from music therapy and implement them in the education setting.

Another study was done concerning adults (teachers, aides, and special needs coordinators) and their involvement with participation in music therapy sessions. After engaging in the music therapy sessions, questionnaires were sent to the adult to complete concerning their involvement in the sessions. The results were as follows. The adult's responses were positive and uplifting. They thoroughly enjoyed their time they spent with the students and the music therapist. A whole new light was brightened as they watched the students come to life in an atmosphere that was inviting, relaxing, enjoyable, fun, and participation level was high. Adults noticed positive transformations in the student's wellbeing due to their involvement in music therapy; behavior and communication improved during sessions. The music therapy groups afforded opportunities for the adults and students to learn more about one another, spend quality time with each other, associate together, and cultivate empathy for one another. This type of setting helps create opportunities for adults to recognize the students in a more positive way.

One job of a music therapist is to work with students with special needs and their caregiver and other school personnel, administrators, teachers, and music educators, to teach

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them how to utilize music therapy in an educational setting. This is done through attendance to music therapy sessions, observing and taking part, and learning strategies that can help student(s) be successful. Once the caregiver feels comfortable implementing these strategies, the music therapist takes over as observer to ensure the therapy is being done correctly and effectively.

When a music therapist is searching for employment in a school district, knowledge from an administrator about music therapy services is vital. An administrator needs to be aware and know about the benefits and effectiveness of music therapy. This awareness can help assist attempts to educate school personal about music therapy and its importance to the special education program. Awareness can also benefit the collaboration between music therapy professionals and the special education department.

Music therapy services are used in special education environmental settings in an assortment of formats. Services that are currently being used are direct services, program-based consultation, and conferencing with music educators. In the school setting, music therapists are participating in many types of team treatment such as interdisciplinary, multidisciplinary and trans-disciplinary.

A counselor can help assist an individual with special needs through musical activities and responses like receptive music listening, lyrical discussions, music improvisations, song writing, and musical performances. In educational or clinical settings, a counselor can engage in treatment planning, evaluations that are ongoing, and follow-up with procedures with clients that have been planned for them. By using music as a strategy, a counselor can help a client learn how to manage their behavior, analyze personal feelings, make constructive changes in emotional and mood feelings, gain a better sense of control by using favorable music

experiences, and find solutions in conflicts that can arise to help better peer and family relationships.

4.3. Music therapy and preschool aged children

Today young children with special needs are being included more and more in early-childhood special education programs. The benefits for these types of inclusive classrooms for young children offer learning experiences that are realistic, increase learning opportunities that are appropriate for this age group, allowing typical peers in the classrooms, and to encourage friendships with students who do not have special needs. Through research studies, it is possible that music can assist young children during their therapeutic sessions to help achieve their social, communication, and academic goals. Music therapy can help assist a music therapist in working with these young children with special needs. As a music therapist works with these young children, the environment needs to be inviting and comforting for the child; the music therapist sets the tone for this type of environment.

Families and peer buddies can be included in music therapy sessions. By doing this, more interaction can take place to help make the music therapy more meaningful. This can give young children comfort to interact more with the music therapist. When a family-centered framework is in addition to music therapy, the relationship-focused designs are what are typical for music therapy practice. The music therapist's goal in these types of settings, with the family or peers, is to educate them to help the child be more successful in their school and home environment. Music therapist's work with what is called self-determination theory, which is defined by Thompson (2012) as a child who is intrinsically motivated will have higher levels of unprompted participation and persistence in activities. Intrinsic motivators have three categories: skill

mastery, knowledge acquisition, and sensory pleasure. The hope of using these three categories is to help young children interact and participate in music therapy sessions successfully.

Music therapists prefer to work with young children of preschool age in their inclusive environment, such as preschool. This helps the child adapt to their surroundings with their peers, take part in general activities throughout their day, such as peer playtime. The music therapist is able to observe the child and then provide the findings to the teacher to support them and also help the child be more successful in the preschool classroom. In the home setting, the music therapist is able to work with the child in a more intimate way, since a child feels most comfortable at home. The family is also able to observe the sessions and implement the strategies learned with their child when the music therapist is not present. This can help promote support between the music therapist and parent and also build parent child camaraderie.

4.4. Music therapy and its effect on school-aged children

Throughout history and across different cultures, research says that music making and music listening have been influential in assisting disorders of the body and mind. Scientists continue to study about the effect music can have on mental states and motor and cognitive functions. Through research, they feel music therapy can be tailored to help target specific dysfunctions or brain injuries. In one case study of an 11-year-old girl suffered from a brain injury; music therapy treatments were meant to help generate, over time, the materialization of “alternative neural pathways in healthy parts of the brain that would compensate for the lost pathways in the damaged language centers.” (Thompson & Schlaug, 2015) In this young girls situation, the primary goal of music therapy was to assist her in recapturing what her life was like before her stroke. The music therapy this girl participated in was called melodic intonation

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therapy. This type of therapy involves singing and tapping out rhythmic syllables to words that are set to an easy melody. This treatment is meant to stimulate undamaged parts of the brain. This girl participated in melodic intonation therapy for 15 weeks; by the end she was able to speak in sentences with five to eight words. After therapy ended, she continued to practice the methods she had learned through therapy. Eight years after her stroke she began publicly speaking about her situation and how she manages her disability. Though her speech is not perfect, she has become an influence to others who are experiencing the same as she.

A second study was done on young children who have serious intellectual and developmental disabilities (IDD). When music therapist's work with young children with IDD, their main focus is on the following skills: social, communication, behavioral, learning, and physical. Music can create an interactive and auditory framework to assist a child with communication actions such as turn giving and turn taking. When working with children with IDD, music therapy is frequently recommended for related reasons, mostly communication engagement and skill development. During the music therapy sessions with the children with IDD, toy play was also involved; these were called nonmusical play sessions. Both musical and nonmusical sessions were conducted to assess what the children preferred and what would accomplish the goals as far as social interaction, communication and physical skills. The data results from the research showed that both therapy sessions successfully engaged the children; they used an abundant amount of communication behaviors during toy-based and musical interactions. Results also showed that music therapy was not any more effective with increasing the amount of communication noted from the children than them playing with their favorite toy with the therapists involvement in both scenarios.

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Children who have suffered through grief or trauma in their lives can benefit from music therapy; they are taught how to convey their grief and anger by way of using different forms of music and writing songs. Children with motor skill deficits can benefit from therapy by being taught and utilizing different types of musical instruments. Children who are visually impaired can enhance their listening skills through music therapy; also children who have autism can increase their communication skills.

While in the school setting, children attend music classes; this includes students with special needs. Through these music classes, music can be used as a means to boost development in the following areas: social, perceptual, learning, motor, emotional, and learning. For children with speech and language impairments, music can help facilitate language development. For those with health and orthopedics impairments, both gross and fine motor development can increase through use of music; using musical instruments by holding them or by swinging, pounding, snapping, clapping, and/or jumping can increase these skills. Music can be beneficial for children with cognitive disabilities through mnemonic devices to help remember sequence, like the alphabet song. Utilizing musical category structures can help a student differentiate such as colors, animals on a farm, shapes, etc. Teaching children through music to help connect sounds with concepts, such as a dog make a barking sound “ruff, ruff” can also benefit a child with special needs. For children who have learning disabilities, music can help them focus on attention and accuracy. When a student learns how to play in instrument, it is possible they can improve concentration, attention, social functioning, impulse control, self-expression, self-esteem, memory, and motivation. For those with behavioral and emotional disorders, music can generate physiological responses; these are associated with reactions to emotions. Students

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can be taught how to share through the use of instruments. By using small group music therapy, interpersonal interactions and socialization skills can be focused on to help these students.

4.5. Music therapy and its impact on adults

Music therapy case studies have shown that music therapy, when used as an intervention to offer support, can help meet an adults needs at their functional level. For adults, music therapy has assisted in treating the following symptoms that were exhibited in research: anxiety, stress, low self-esteem issues, empowerment, depression, anxiety, and identity crisis. When working with adults through music therapy, goal setting can be effective to help during their sessions to see past their disabilities and focus on their abilities.

One study, done on 12 adults, was combining music therapy and exercise training to help with depression. The objective of the study was to evaluate the effect of music therapy and physical training with these depressed adults. This particular study was conducted during a six-month timetable. Observation results were recorded at month three and then again at month six. Three different genres of music were used: modern, classical, and jazz. The adults were given an i-pod which had music of the genres downloaded. Another 12 adults were included in the study; they were given the same exercise program but were treated with antidepressant medication rather than music. The music group was not given any medication. After the 12 and 24-week observations, the music/exercise group demonstrated a positive effect; both depression and symptoms of anxiety were reduced. One positive result was a substantial reduction of anxiety at the six-month mark. In the pharmacotherapy group (the ones given anti-depressants) only small changes were observed in the adults. Any physical training combined with listening to music has the ability to have a positive effect, which could lead to changes in both anxious and

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depressive components of an adult's mood. Further research on this subject, using more adults could show more accurate evidence.

Music medicine, as defined by Sanfi & Christensen (2017), is the use of pre-recorded music administered by the patient, nurses, or other medical staff. They define music therapy as the systematic use of music experiences aiming at meeting therapeutic objectives, performed by a trained music therapist. Opposite of music medicine, music therapy includes a music therapist, a client, and music and involves assessment, treatment, and evaluation. Music interventions for adults can decrease emotional distress brought on by pain, decrease self-reported pain, and reduce the use of opioid, non-opioid medication, and the use of anesthetic. Music therapy has been reported to have more of a clinical effect on the intensity of pain than does music medicine. However, music medicine can have more of an effect on remedies that relieves pain. All together, though, music medicine and music therapy may provide a positive effect on cancer/chronic pain to adults in the medical environment.

Stegemoller (2017), a board-certified music therapist and neuroscientist, says, "Perhaps music's strongest feature is that it interacts with diverse regions of the brain. Music can activate brain regions involved in listening to, reading, moving to, and playing music, and in the experiencing of memories, emotional context, and expectations associated with music." A music therapist can adapt music to produce a proper adjustment in non-music-related behavior, particularly focusing on regions in the brain that underlie these behaviors. Through research, Stegemoller (2017) has found that three understandable principles of neuroplasticity ("the ability of the brain to change throughout a person's life span as a consequence of sensory input, motor actions, reward, or awareness") can clarify how music therapy functions; those are reward

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circuitry, the Hebbian Theory, and noise. The reward circuitry works when an individual listens to enjoyable music; this stimulates the reward network of the brain. When combining rewarding music with proper, non-music behaviors, a music therapist could be penetrating through to the brain's reward passageway. The Hebbian Theory is where neurons electrify at the same time to make stronger connections in the brain. When rhythm of music is played it can activate synchrony (simultaneous occurrences) in neurological networks of the brain. This assists individuals and their senses; it can boost regulation to their heart rate, vocalization, movement, or breathing by eliciting concurrent firing of brain neurons that help control those behaviors, increasing neuronal connectivity, and producing more long-lasting changes in individuals. The third principle is noise. Music therapists are trained in voice and instrumental noise; therefore they are able to minimize the extent of noise and enhance the accuracy of musical sounds. By doing this, music therapists may be able to implement more clear acoustic signals, vocal or instrumental, than other clinicians; this can develop neuroplasticity in individuals brains.

5. Conclusion

As I have researched, read, and studied about music therapy, I have noted that most of the studies have been conducted on small amounts of individuals. Only a number of the research studies were conducted on a large amount of individuals with special needs. I feel the research needed additional subjects and needed to be clearer about the type of research done. I also found a number of the articles I located and used were personal narratives about another individuals research. This was ineffective to help me build quality research about music therapy and the effect it can have on individuals with special needs. The research was promising but questionable based on limited cohort sizes and study group dynamics. Although the research was not as

comprehensive as I hoped, music therapy, it seems, can offer positive outcomes. Observing music therapy in action addressing special needs would be of interest to me.

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