MUSIC INTERVENTIONS FOR WELLNESS IN HEALTHY POPULATIONS: A SYSTEMATIC REVIEW

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MUSIC INTERVENTIONS FOR WELLNESS IN HEALTHY POPULATIONS: A SYSTEMATIC REVIEW

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ABSTRACT

The purpose of this study was to synthesize research studies in music therapy interventions for wellness. Thirty three experimental research studies published from 2000 - 2015 in the Science Direct, ProQuest, Google Scholar, and university database met the inclusion criteria of this review. A coding form consisting of a) publications and researchers, b) research methodology, and c) research content and music interventions were developed as a research instrument for collecting the characteristic data from the research studies. Data was analyzed using the SPSS program and presented with descriptive statistics (frequency and percentages).

The result of the systematic review revealed that the greatest number of studies between 2000 - 2005 were published in journal in the field of music therapy (42.4%). Most experimental designs were randomized control-group pretest-posttest (39.4%). Most participants were students (36.4%) ranged between 1-50 people per session (42.2%). Almost all studies reported their outcome in the emotional domain (70.0%), and focused on anxiety and work performance (16.6%) as their therapeutic goal. Passive music listening (60.6%) was mainly used as an intervention strategy in session and music selection were selected by the researchers based on research evidences (48.5%). Recorded music was mostly used in music interventions (69.7%). The duration of sessions was mainly presented in less than 30 minutes (57.6%) and they met the participants only one time (48.5%).

KEY WORDS: SYSTEMATIC REVIEW/ RESEARCH/ MUSIC THERAPY/ WELLNESS

66 pages

การสังเคราะห์งานวิจัยเกี่ยวกับดนตรีเพื่อส่งเสริมสุขภาพสำหรับคนที่มีสุขภาพดี
MUSIC INTERVENTIONS FOR WELLNESS IN HEALTHY POPULATIONS: A SYSTEMATIC REVIEW

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คณะกรรมการที่ปรึกษาสารนิพนธ์ : นัทธี เชียงชะนา, ปร.ด., ปรีญานันท์ พร้อมสุขกุล, ปร.ด.

บทคัดย่อ

การวิจัยในครั้งนี้มีวัตถุประสงค์เพื่อสังเคราะห์งานวิจัยด้านดนตรีเพื่อส่งเสริมสุขภาพในกลุ่มคนที่มีสุขภาพดี งานวิจัยที่นำมาสังเคราะห์เป็นงานวิจัยเชิงทดลองจำนวนทั้งหมด 33 เล่ม ซึ่งตีพิมพ์ในระหว่างปีค.ศ. 2000 - 2015 จากการสืบค้นในฐานข้อมูลต่างๆ ได้แก่ Science Direct, ProQuest, Google Scholar, และฐานข้อมูลจากมหาวิทยาลัย เครื่องมือที่ใช้ในงานวิจัยคือ แบบบันทึกคุณลักษณะงานวิจัย เพื่อใช้ในการเก็บรวบรวมข้อมูล 3 ด้าน ได้แก่ 1) การตีพิมพ์และผู้วิจัย 2) ระเบียบวิธีวิจัย และ 3) เนื้อหางานวิจัยและการใช้ดนตรี ข้อมูลที่ได้นำไปวิเคราะห์สถิติเชิงบรรยาย ได้แก่ ความถี่ และร้อยละ โดยใช้โปรแกรม SPSS

ผลการวิจัยพบว่างานวิจัยส่วนใหญ่ถูกตีพิมพ์ในวารสารทางดนตรีบำบัด (ร้อยละ 42.4) ในระหว่างปีค.ศ. 2000-2005 แบบแผนการทดลองที่ใช้มากที่สุดคือ randomized control-group pretest-posttest design (ร้อยละ 39.4) จำนวนผู้เข้าร่วมการทดลองอยู่ในช่วง 1-50 คน (ร้อยละ 42.4) โดยกลุ่มประชากรส่วนใหญ่คือนักเรียน (ร้อยละ 36.4) งานวิจัยเกือบทั้งหมดมีการรายงานผลในด้านอารมณ์ (ร้อยละ 70.0) และมุ่งเป้าหมายในการบำบัดด้าน ความวิตกกังวล และความสามารถในการทำงานมากที่สุด (ร้อยละ 16.6) ในด้านการใช้ดนตรีพบว่าส่วนใหญ่มีการใช้การฟังดนตรีมาก (ร้อยละ 60.0) โดยนักวิจัยเลือกบทเพลงจากการอ้างอิงงานวิจัยอื่นๆ มากที่สุด (ร้อยละ 48.5) ในงานวิจัยส่วนใหญ่มีการใช้เพลงบันทึกร่วมในกิจกรรมดนตรี (ร้อยละ 69.7) โดยผู้เข้าร่วมวิจัยจะร่วมกิจกรรมดนตรีในระยะเวลาน้อยกว่า 30 นาที (ร้อยละ 57.6) และเข้าร่วมกิจกรรมเพียงครั้งเดียวมากที่สุด (ร้อยละ 48.5)

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CHAPTER I
INTRODUCTION

1.1 Background of the study

Medical science has always been developing continually in the past. Not only just cured diseases but also prevented illness and improved health. People could access health information and learn about prevention activities for themselves and their families. Wellness is the most popular choice among people for improving health. This trend has grew and accepted rapidly in many areas in the world such as America, Europe and Asia. Many institutes explained about wellness and guided appropriate ways to manage health (Ketchum's Health and Wellness Trend Report, 2012; Hewitt, 2015).

The concept of wellness has been discussed for a long time. In the past, researchers explained wellness would lead people to get a positive health individually. First, wellness was presented in physical and emotional concepts such as exercises and mental health. In Oxford Dictionary of Sport Science & Medicine, wellness was defined as a condition obtained when a person achieves a level of health that minimizes the chances of becoming ill (Kent, 2006). There are different views on what wellness encompasses. Wellness itself includes emotional stability, clear thinking, the ability to love, create, embrace changes, exercise intuition and experience a continuing sense of spirituality (The Alliance Institute for Integrated Medicine, 2010). The concept of Wellness from the National Wellness Institute described it as a process which people become aware of and make choices toward a more successful existence (Pacific Northwest Foundation, 2015). Hettler (1976) developed the independent model of wellness, commonly referred to as the Six Dimensions of Wellness including physical, emotional, social, intellectual, occupational and spiritual parts.

In business corporations, wellness programs were used to promote healthy lifestyle choices. The programs vary depending on the target population and each company's way of conduct. Wellness programs are often pursued by people seeking recovery from an illness or specific health condition, or by those interested in improving

their overall health. Domains addressed in wellness programs may include nutritional awareness, physical fitness, stress management, and environmental sensitive. Music is one element in many wellness programs. Scientific-based research in wellness studied about music for improving health and quality of life (Mandel, 1996; Krout, 2007).

Music therapists have been responding to the growing of the prevention and wellness trend more than healing an illness. Music therapy interventions can fit with various dimensions of wellness programs such as physical, emotional, intellectual, social, and spiritual. There were many articles about music therapy based wellness program with many populations such as geriatric (Hamburg & Clair, 2003) and patients with heart diseases (Bittman et al., 2013). In addition to how wellness plays a role in individual persons and corporate workplace, it also has an impact on both healthy persons and those with diagnosed diseases.

A number of studies have investigated the effectiveness of music wellness interventions in both patients in hospital and healthy people. Some studies promote quality of life in terminal state, cancer, Alzheimer or stroke patients. In another, many studies explored wellness in healthy elderlies (Satoh et al., 2014; Vanderark et al., 1983), employees (Moore, 2012; Wachi et al., 2007; Bittman et al., 2003), pregnant women and students (Bittman et al., 2004; Mungus & Silverman, 2014). Almost all results of these studies presented benefits of music wellness interventions in reducing stress, increasing intention and enhancing work effectiveness.

Although there were many research studies in area of music for wellness, none of these studies suggested how to select music interventions effectively. The methodology of systematic review is one way to collect and analyze the studies in the area of medicine and health care. Systematic reviews are process by summarize, appraise and communicate the results and implications of a large quantity of research and information. The purpose of systematic review is to provide knowledge from evidence based researches on specific questions. Moreover, systematic review helps to clarify a vital issue to the public and to health care professionals. Clinicians and staffs also study the clinical and cost effectiveness of an intervention for their patients (Hemingway & Brereton, 2009; Hanson-Abromeit & Sena, 2014).

1.2 Needs for the study

Trend of alternative medicine for prevention diseases also give support to study choices of wellness activities. Many researchers have been studying music-based interventions for wellness program (Scheve, 2004; Bittman et al., 2003; Mungas & Silverman, 2004; Hillman, 2002; Hays, Bright, & Minichiello, 2002; Kidwell, 2014). They used music activities to initiate wellness program on variety of groups of healthy people. Although there were a lot of studies about wellness but there were lack of studies that summarize and analyze how music interventions help promote wellness. Systematic review is a key element of healthcare research. The result of this methodology could give better review for more effective intervention or treatment for clients (Hemingway & Brereton, 2009).

At present, systematic review in music therapy is important for the growth of evidenced-based clinical practices. Systematic review articles were commonly published in many journals. In 2011, Chang, Wong, & Thayala synthesized the research in the field of the effectiveness of music listening in reducing depressive symptoms in adults. Moore (2013) conducted on systematic review of music therapy practices and effectiveness on emotional regulation. Carr, Odell-Miller, & Priebe (2013) did the systematic review in the area of psychiatric in-patients. Moreover, Li, Wang, Chou, & Chen (2015) used systematic review and meta-analysis as a methodology to conduct a research in the field of music therapy on cognitive functioning with older adults.

As mentioned above, there were many systematic review papers analyzing music therapy for improving health in difference population; however, there were none in the field of music therapy for wellness in healthy populations. Hence, these studies will help music therapists and other professionals to better design an evident-based music intervention for healthy populations. This knowledge can also benefits in guiding any researchers to do future studies.

1.3 Purpose of this study

The purpose of this study was to synthesize research studies in music intervention for wellness. There were three main characteristics that were analyzed, comprising 1) publications and researchers, 2) research methodologies, and 3) research content and music interventions.

1.4 Research questions

1. What are the characteristics of research in publications and researchers of research studies in music intervention for wellness in healthy populations?

2. What are the characteristics of research in research methodologies of research studies in music intervention for wellness in healthy populations?

3. What are the characteristics of research in research content and music interventions of research studies in music for wellness in healthy populations?

1.5 Definition of term

Wellness: Wellness is defines as an active process of becoming aware of and making choices toward a healthy and fulfilling life in various dimensions including physical, emotional, social, intellectual, occupational and spiritual. Now wellness grows as a popular concept and many of alternative medicine applied in this way not only for patient but also general self-improvement (Hettler, 1976; Pacific Northwest Foundation, 2015). In this study, the researcher focused on wellness in healthy population include physical, emotional, social and intellectual dimensions.

Music interventions: Music interventions are professional use of music elements to accomplish individual needs in non-musical goal for improves quality of life with all age (American music therapy association, 2015; World Federation of Music Therapy, 2011). The interventions used in this study were recommended for music therapist and other professionals who used music to address non-musical goals such as cognitive, physical, communication, social, and emotional goal.

Systematic review: Systematic review is a structured literature review which identifies, selects and analyzes inclusion quality research related to a research question. Systematic review involves synthesizing and assessing all available evidences both quantitative and qualitative data. The results of this methodology are beneficial to make an effective intervention or treatment for clients (Cook, Mulrow, & Haynes, 1997; Mallett et al., 2012; Hemingway & Brereton, 2009).

1.6 Thematic paper's organization

This thematic paper consisted of six chapters. The first chapter was introduction which included background of the study, needs for the study, purpose of the study, and definition of terms. The second chapter was literature review which focused on wellness, music therapy, and systematic reviews. The third chapters was research methodology which consisted of research design, search strategy, research studies inclusion criteria, article exclusion criteria, research instrument, data collection and analysis process. The results was in chapter four. Chapter five was presented discussion and recommendation, and the last chapter was a conclusion.

CHAPTER II
REVIEW OF RELATED LITERATURE

This chapter begin with clarification of wellness including definition of wellness, and dimension of wellness. Then, the researcher explained about music therapy along with definition of music therapy, and music therapy and wellness. Finally, systematic review, an experimental design in this study was clarified with three topics including definition, process, and advantage of systematic review.

2.1 Wellness

2.1.1 Definition of wellness

The holistic view of wellness is an absence of illness and a stage of well-being are both essential (World Health Organization, 1986). The term "wellness" has been described in many perspectives. In Oxford Dictionary of Sport Science & Medicine, wellness was defined as a condition obtained when a person achieves a level of health that minimizes the chances of becoming ill (Kent, 2006). Although The Alliance Institute for Integrated Medicine explained on wellness in different view as much more than just a state of physical health, it has also include emotional stability, clear thinking, the ability to love, create, embrace change, exercise intuition and experience a continuing sense of spirituality (Pacific Northwest Foundation, 2015). This concept often accentuated by alternative medical systems, where it is viewed as distinct from the concepts of prevention and treatment of disease. (Watt, Verma, & Flynn, 1998).

In the same way, wellness concept from Arizona State University (ASU) concerned on connections and the idea that the mind, body, spirit and community are all interconnected and interdependent. Moreover, the National Wellness Institute has

described about wellness as a process which people become aware of, and make choices toward, a more successful existence (Pacific Northwest Foundation, 2015).

Wissing (2000) refers 'health' and 'wellness' as similar, depending on the context. Some literature also support for this interchangeability. In some studies, the term 'health' refers as a biomedical condition and 'wellness' as an emotional condition (Green & Shellenberger, 1991). Certainly, wellness is still difficult to clarify. It has been argued that wellness is subjective, thus it is difficult to accurate definition and measure construct (Kelly, 2000; Sarason, 2000; Travis & Ryan, 2004).

As mentioned above, wellness is defined as an active process of becoming aware of and making choices toward a healthy and fulfilling life in various dimensions including physical, emotional, social, intellectual, occupational and spiritual (Hettler, 1976; Pacific Northwest Foundation, 2015). In this study, the researcher will focus on wellness in healthy populations. The researchers have explored and defied this term in various components.

2.1.2 Dimensions of wellness

Wellness involves many dimensions that made up the whole person. Miller & Foster studied about several key dimensions of wellness. There are physical, emotional, social, intellectual, spiritual, occupational, environment, cultural, economic and climate (Miller & Foster, 2010). Dr. Bill Hettler, co-founder of the National Wellness Institute, developed the independent model of wellness in 1976s. That commonly referred to as the Six Dimensions of Wellness (Hettler, 1976). Conventionally, many literatures often study in dimensions of wellness as follow:

Physical wellness

Physical wellness recognizes as physiological considerations of body health and harm-avoidance behaviors. Physical development encourages maintaining a healthy lifestyle of fitness, flexibility through an exercise management and learning about diet and nutrition. The study found that avoiding negative behavior such as smoking, drinking alcohol and inactive living affect physical wellness (Ryff & Singer, 2006). In addition, personal responsibility on seeking medical care when appropriate, as well as keeping a realistic view of personal physical capabilities and limits is important (Case & Paxson, 2006; Renger et al., 2000).

Emotional wellness

The term emotional or psychological wellness refers to human ability to effectively handle emotion, in a way that allows us to maintain a positive emotional state. This term is conceptualize awareness and acceptance of one feeling, as well as self-valuing, positive, realistic and develops ability to deal with conflicts of life (Adams et al., 1997). In the same way, Renger (2000) described emotional wellness dimension implied as an ability to be aware and accept feeling of themselves. Moreover, emotional wellness includes developing a sense of self-esteem, self-confidence, trust and self-control, and practicing good stress management skills.

Social wellness

Social wellness refers to as an ability to maintain healthy, supportive relationships with other people. This term is broad in scope because it includes interaction of individual with others, community, nature and work. It also involves having meaningful relationships, respecting yourself and other, and having good communication skills. National Collaborating Center for Determinants of Health (2010) confirms family is one important impact for relationship quality and scope of human's social network. Social wellness is affected when one is unemployed, found in both men and women (Clark, 2003; Myers et al., 2005).

Intellectual wellness

Intellectual wellness was characterized by the ability to learn resources to expand knowledge, to be open to new ideas, and to be a good decision maker and problem solver. In addition, this term refers to a personal orientation, and an accomplishment towards personal growth, education, achievement, and activity (Renger et al., 2000). It also involve active participate in academic, culture and community activities. Some studies found low level of literacy are more likely to harm experiences such as smoking, inactivity, obesity and poor diet (Public Health Agency of Canada, 2008; Blanch flower & Oswald, 2005).

Spiritual wellness

Spiritual wellness involves exploring meaning and purpose in one's existence (Hettler, 1980; Adams et al., 1997; Renger, 2000). It includes possessing a set of guiding beliefs, principles, or values that helps giving direction to one's life. Spiritual wellness was characterized by developing compassion, altruism, forgiveness, and love

(Duquin, McCrea, Fetterman, & Nash, 2004). It encompasses a high level of faith, hope, and commitment to your individual belief that provides a sense of meaning and purpose. Some studies found our beliefs affect our subjective well-being; and religious people generally being happier than non-religious people (Helliwell, 2003).

Occupational wellness

Occupational wellness is the scope to which one can express values and gain personal satisfaction and enrichment from work. This involves contributing your unique skills and talents to work that are personally meaningful and rewarding. Anspaugh et al. (2004) explained in simple meaning that it is an ability to achieve a balance between work and leisure time. The studies indicate that having a satisfying work life positively impacts physical and emotional health (May, 2007; Clark & Oswald, 1994; Winkelmann, 2005).

Each wellness dimension has many appropriate activities; for instance, fitness, nutrition, yoga, spa, sport, art and music. Wellness program was designed from many institutes for facilitate to individual needs. Likewise, music therapy is the use of music intervention to accomplish individual needs by trained profession.

2.2. Music therapy

2.2.1 Definition of Music therapy

There are many different definitions of music therapy depending on personal experiences, knowledge and culture. Peters (2000) said music therapy defined as a planned, goal-directed process of interaction and intervention, based on assessment and evaluation of individual clients' needs. The music or music-based experiences are specifically prescribed to be used by trained profession to influence positive changes in an individual's conditions. Music therapy is generally based on following characteristics. Firstly, purposeful adaptation of musical elements by a trained music therapist to reach outcomes. Secondly, usefulness of music experiences to improve quality of life by responding to individual client needs and preferences, and thirdly continually integrating results of current research in music, physical, and social sciences and results of evidenced based practice.

The American Music Therapy Association (2015) defines the term music therapy as the professional use of music interventions to reach individual needs within therapeutic relationship in clinical setting. In the same way, The World Federation of Music Therapy (2011) described music therapy to be an evidence-based professional use of music elements to achieve individual goals including physical, social, communicative, emotional, cognitive and spiritual for improve quality of life.

Music therapists facilitate people in sessions for both individual and groups. Participants can benefit from creative music activities even if they don't have any musical ability. Music therapists focus on working with variety of physical, emotional, spiritual health and well-being. Some of music therapy interventions are for examples making music, writing song, listening to music, talking about lyric and imagery through music (Mangus & Silverman, 2014; Robb, 2000; Bittman et al., 2005).

Scientific articles have presented the value of music therapy on the body, mind and spirit of all age. Many studies show that music therapy is an effective interventions for patients with substance abuse (Silverman, 2012), children with anxiety (Goldbeck & Ellerkamp, 2012), brain injury (Thaut & McIntosh, 2010), children with autism (Kim, Wigram, & Gold, 2009), depression (Maratos, Wang, & Crawford, 2009) and palliative care (Rykov, 2008). Then the results can imply that music therapy is one of effective processes of moving progress wholeness in health such as physical, mental and spiritual health.

In conclusion, music therapy is the professional use of musical interventions to accomplish individual goals include physical, mental, cognitive, communication, social and spiritual for improve quality of life with all age. Music therapist will process based on evidence to reach clients' needs and balance health in each dimensions.

As mentioned above, music therapy dimensions with corresponded to wellness dimensions are physical, emotional, social, and intellectual. Therefore, the use of music is widely accepted to promote wellness. There are many filed of researches that support the use of music for wellness such as medical (Ventura et al., 2012), nursing (Lee et al., 2008; Kafali et al., 2011), and music therapist (Hirokawa & Ohira, 2003; Silverman, 2006).

2.2.2 Music therapy and wellness

Music is one choice in variety activities of wellness. Music therapy is the professional use of musical interventions to accomplish individual goals include physical, mental, cognitive, communication, social and spiritual for improve quality of life with all age. The wellness movement has put music therapy in a more prominent position than it had held in the past. However, this interventions can fit with various dimensions of wellness program.

Physical domain

Conventionally, music therapy is an established health profession using music activity or interventions to address physical domain. It is a non-invasive medical treatment designed to prevent illness and disease and promote physical rehabilitation (Scheve, 2004). Especially in older adult population, they live with a reduced ability to move, needed for intimate care and participation in the activities in daily living. Music activities can facilitate in maintaining walk endurance and improving range of motion and strength (Saton et al., 2014). An additional evidence from the neurophysiological literature suggests that music-making functions are 'food for the brain' (Fancourt et al., 2014; Bittman et al., 2001) They explored the effect of group drumming in healthy worker and found that music can improve neuroendocrine-immune parameter that can defend illness.

Emotional domain

People can drive meaning and purpose through nature, art and music. There is evidence that music therapy can increase responsiveness to working, reduce burnout and improve mood stages in both worker and student (Bittman et al., 2003; Mungas & Silverman, 2004). Moreover, soothing music can help newborns be more relaxed and less agitated. In the same way, Grape et al. (2003) found that post singing session levels of cortisol were higher for professional singers than for amateurs. Significant positive changes were observed with all participants indicating improvements in mood and energy following the singing session. Singing intervention is generally studied in combination with other musical techniques, like listening to music or playing music instruments.

Social domain

Music therapy can increase bonding with others, cooperation with family members and supporting staff. For instance, Hillman (2002) explored the benefits of participation in an informal singing group for people aged over 60.The ways that these interpersonal skills can translate into improved social connections for group members is highlighted in this study with older people.

Intellectual domain

People can increase intellectual wellness by playing music instrument that practicing to create sound, make patterns, and express emotion through music. Moreover, each element of music such as melody, harmony and rhythm can stimulate several parts of the brain (Thaut, McIntosh, & Hoemberg, 2014; Hays, Bright &Minichiello, 2002). A number of studies used music therapy to promote brain abilities in student and restore memories in elder (Hirikawa, 2004; Silverman, 2006).

Spiritual domain

Kidwell (2014) used music intervention and singing to explore through the beliefs and attitudes of their religions among three different cases. Music has the capability to encourage expression, saturate the mind and body, and provide relaxation. Music acknowledges suffering and encourages an awakening of the spirit that brings about this acceptance related one's believe. It is necessary for the therapist to hold onto that music experience and use it for client's self-growth.

Moreover, music therapist has been responding to the growing prevention and wellness trend. They can use music elements to facilitate client in wellness program with various healthy population, including older adult, pregnant, within the workplace and in school. There are many articles about music activity based wellness program such as geriatric (Hamburg & Clair, 2003), employee (Lesiuk, 2010), pregnancy women (Chang & Huang, 2008), and college student (Mungas & Silverman, 2014).

Music therapy wellness programs for older adult help maintain quality of life by increasing physical movement, reducing stress, stimulating cognitive function and promoting interpersonal activity (Coffman, 2002). Eckl (2012) explored interrelationship and influence of music on the quality of life of old people. There are three parts that music can be improved which are well-being, health and maintenance of basic human skills. In addition, the music therapy center of California (2015) has the

wellness program for older adult that provides both individual and group music therapy session, in the home or at an on-site location such as health care center, nursing center and hospital

In workplace, music has been used to positively influence environment and promote healthy lifestyle choices. Many studies used music therapy program strategies on employee communication, teamwork, absenteeism, stress management, job satisfaction, and reduce medical cost (Bittman et al., 2003; Smith, 2008).That programs had difference activities such as recreational music making, music relaxation, music listening and group drumming (Wachi et. al., 2007; Smith, 2008; Lesiuk, 2010).

Furthermore, in school setting, music therapy can used to encourage learning, positive thinking and support cooperation (Mungas & Silverman, 2014). Ohira (2003) explored about the effect of music listening after a stressful schedule in college student. In the same way, Hoeft & Kern (2007) studied the effect of listening to recorded percussion music on well-being. Moreover, some studies used active music activities for improve mood state in university students.

Finally, the effect of music in pregnancy can reduce anxiety and relief labor pain (Ventura et. al, 2011; Katari, 2008; Norouzi; 2013). Besides, the benefits of music effect to neonatal too. There is an evidence on listening to music during late pregnancy lead to infant being more relaxed and less agitated (Cappon, 2014).

As mentioned above, these studies use various interventions for beneficial in health care in healthy populations such as singing (Clements-Cortes, 2014), listening (Hsieh & Kline, 2003; Laukka, 2007), movement with music (Hamburg & Clair, 2003), and playing instruments (Bittman et al., 2003). Improvements to overall psychological health and wellbeing have been identified in various non-clinical populations. In the future, music therapists, with the help of their national associations and health care center may develop workshops, seminars, and resource materials to accept wellness tread in healthy populations.

Many music therapy studies have shown the use of music interventions for wellness that was popular among people with special needs and healthy populations. In general, with more research study, the systematic review will help support the knowledge and improved the treatment or intervention to be more effective.

There are systematic reviews in music therapy in various populations such as Autism, palliative care, and psychiatric patient (Carr et al., 2013; Chan et al., 2011; Li et al., 2015). The study show that commonly used systematic review in music therapy was popular in medical and in public health as well. (Cook et al., 1997; Evans, 2002; Hanson-Abromeit & Sena, 2014; Lang, 2004).

2.3. Systematic review

2.3.1 Definition of systematic review

Systematic review is a type of research design which identifies, selects and analyzes inclusion quality research related to a research question. The specific questions of study are addressed by systematically and explicitly scientific strategies including limited bias, critical appraisal, and synthesis of all relevant studies (Cook, Mulrow, & Haynes, 1997). The results of this methodology are beneficial for making effective interventions or treatments for client. Harbour & Miller (2001) evaluated scientific studies and found that systemic review is a more reliable research than other types of research such as randomized controlled trials (RCT), non-randomized intervention studies, observational studies, non-experimental studies, and expert opinion.

2.3.2 The Process of Doing a Systematic review

There are many ways to manage a systemic review to answer research questions. Some researchers developed this process in a brief, though they will explain in more details. Mallett (2012) explored the way in four steps including 1) identify the research questions, 2) search the relevant research, 3) screen all researches, and 4) extract the relevant data. Hemingway & Brereton, (2009) developed the process for healthcare research in five steps consists of 1) Defining appropriate healthcare questions, 2) Searching the literature, 3) Assessing the studies, 4) Combining the results, and 5) Placing the findings in context. The five steps were conducted by Khan et al. (2003) consists of the detail as follow.

Step 1: Framing questions for a review. The research question is deconstructed by considering population, intervention, outcome and comparator. Then a protocol is produced that describes definitions, search strings, search strategy, inclusion and exclusion criteria and approach to synthesis.

Step 2: Identifying relevant work. The study selection criteria should flow directly from the review questions. Reasons for inclusion and exclusion should be recorded

Step 3: Assessing the quality of studies. Study quality assessment is relevant to five step of a review. First, question formulation and second, study selection criteria should be described. Then selected studies should be subjected to a more refined quality assessment by use of critical appraisal guides and design-based quality checklists. Next, these assessments will be used for exploring heterogeneity and informing decisions. Finally, they help in assessing the strength of inferences and making recommendations for future research.

Step 4: Summarizing the evidence. Data synthesis consists of tabulation of study characteristics, quality and effects as well as use of statistical methods for exploring differences between studies and combining their effects.

*Step 5: Interpreting the findings.*The issues highlighted in each of the four steps above should be met. Any recommendations should be graded by reference to the strengths and weaknesses of the evidence.

Hanson-Abromeit & Sena (2014) explained a research process of systematic review in music therapy. There are five steps consisting of 1) creating the foundation by identifying the research plan and operationalizing the target question, 2) conducting the search in which researcher identifies, gathers, and organizes existing studies related to question, 3) data extraction including literature and coding extraction of data, 4) synthesis and analysis of the data to answer the research question, and 5) evaluating the strength of evidence and presenting the results.

2.3.3 The Advantage of Systematic Review

In half of 20th century, the researcher were explored medical, nursing and healthcare studies by systematic reviews more than two million articles per year (Hemingway & Brereton, 2009). In addition, physician and interdisciplinary team in

healthcare have wide-ranging information needs. Systematic reviewers should carefully consider how they will combine the effects of treatments on multiple benefits and harms. Moreover, they will incorporate patient preferences for these different outcomes (Rockville, 2011).

Lang (2004) explained the advantages of using systemic review that 1) become interested in a biological or human problem, 2) learn what is known about the problem, 3) formulate a research question about the problem, 4) design an experiment to test one or more possible answers to the question, 5) select a critical sample to study, 6) collect the data needed to answer the question, 7) analyze and interpret the data, perhaps statistically, 8) derive conclusions on the basis of the data, and 9) publish the results of the study.

CHAPTER III
RESEARCH METHODOLOGY

The purpose of this study was to synthesize the research studies in the field of music for wellness in healthy populations. This chapter presented research methodology including research design, search strategy, selection criteria, coding form, data collection, and data analysis.

3.1 Research design

Systematic review was employed in this study. The systematic review is a study that assesses and evaluates all particular research to specific topic. The researcher used the scientific systematic process to collect research studies that refer from Hanson-Abromeit and Sena' study in 2014 because this process was not complicate and appropriate in time period for study.

1) Creating the foundation: The researcher defined and gave enough conceptual and operational to the question generated, by narrowing them down to be specific and clear.

2) Conducting the search: This part was a data collection part whereby the researcher would identify, gather, and organize existing literature related to the questions, and perform an initial analysis to determine article inclusion in the review.

3) Data extraction: The extraction of information from included research studies is required in this part. This process involved coding the extracted data in an organized and detailed manner.

4) Synthesis and analysis of the data in SPSS program: The synthesis stage included identifying data relevant to a particular research questions, determining the patterns in the data, and interpreting how the data answer the questions.

5) Evaluating the strength of evidence and presenting the results*:* Outcomes are evaluated on the through and well-considered recommendations. Discussion should

provide a summary of the evidences that described primary finding and reported strength of the evidence for each research question outcome.

3.2 Search strategy

The search processes used in this study was a computerize search of the following electronic database: Science Direct, ProQuest, Google Scholar, and university database. Furthermore, the studies search from electronic journal including Journal of Music Therapy, Australian Journal of Music Therapy, The Art in Psychotherapy, Psycho neuroendocrinology and Journal of Clinical Nursing. The researcher selected articles published since year 2000 onwards as it is more up to date and the information is more applicable for the study. Then, the researcher searched the following database from 2000 to 2015. Electronic databases were searched using the following keyword phrases:

1) “music therapy intervention for wellness in healthy people”
2) “music intervention for wellness”
3) “music for wellness in healthy people”
4) “music for wellness in pregnant”
5) “music for wellness in workplace”
6) “music for wellness in student”
7) “music for wellness in older adult”
8) “music wellness”.

Finally, a search was guided from the reference lists of retrieved studies to identify any studies missed during the database searches.

3.3 Selection criteria

The research studies were included based on five selecting criteria follow;

1) Articles were published in English. Because English based articles might give more credential to this study.

2) Experimental research design were included in this study.

3) Participants in the research study were healthy.

4) The study used music was a primary stimulus with participants.

5) The study results reported on the impact of music on nonmusical goals such as social, physical, emotional, spiritual, communication and environment.

Article exclusion criteria

1) The article was a review study or theoretical paper.

2) The study results reported on the impact of music on nonmusical goals but did not benefit for wellness.

3.4 Coding Form

The coding form was a research instrument for addressing the data in this study. It was a repetitious process that develops from the research questions. This coding form is designed based on research studies from the office of the education council (2009), which was the meta-analysis of Thai education research as a guideline. The form is divided into two major parts which are description of research part and the effect size of the research part. There are many more minor components of the two; however, the researcher would selected the related topic to the question of this study. It consists of three main topics including 1) publications and researcher, 2) research methodology, and 3) research content and music interventions.

The part of publication and researchers was developed by using the research study of the office of the education council (2009) which was the meta-analysis of Thai education research as a guideline. From the above information, there were up to 11 items in which each of them has a lot of detailed information that the researchers need to deduct some unrelated content in order to produce a quality music therapy study. This part was collecting year of publication, publication of sources, and degree of researchers.

The second part of coding form was a research methodology. The seven items were collected including experimental research design, sample size, selection of participant, assessment tool, and data analysis. This part was developed by using text book about research called research methodology in behavioral sciences (Kamged, 2008), and the research study of the office of the education council (2009).

The final part of coding form was research content and music interventions. This part consists of types of the participant, age of the participant, intervention, outcomes, and testing results. In the part of intervention, there were seven sup-items including intervention strategy/music activity, music selection process, music delivery method, clustering of session, number of session, duration of each session, and frequency. Likewise, some detailed information of the intervention was partly from Robb (2011) Guidelines for Music-based Interventions that shown in Appendix C.

3.5 Data collection

1) *Collecting research that related the topic*. Search strategy was start with an initial search of major electronic databases and electronic journal that used the keyword. Moreover, a search was guided from the reference lists all retrieved studies to identify any studies missed during the database searches.

2) *Selecting the full text studies which met the selection criteria*. The researcher should include only full text studies. Five selection criteria were used to help determine which studies should be included in this systematic review.

3) *Reading and coding information*. The researcher extracted information from included studies related to selection criteria. An actual data always related to the review questions. Then the researcher made a coding form that related with objectives in this study. This included as applicable, information about publication and researcher (i.e., year of publication, publication of sources and degree of researchers), research methodology (i.e., experimental research design, sample size, selection of participant, assessment tool, and data analysis), and research content and music interventions (i.e., population, age of participant, music interventions, outcomes, and testing results).

3.6 Data analysis

Appropriate data related to the objective were extracted and put to SPSS program for analyze. Study outcomes were analyzed and compared for trends and common findings. Differences in data extracted were discussed and results agree upon

for data analysis. Descriptive statistics (frequency and percentages) were used to analyze the data and describe the research findings.

CHAPTER IV
RESULTS

The purpose of this study was to synthesize research in music interventions in wellness included three main characteristics that will be analyzed, comprising 1) publications and researchers, 2) research methodology, and 3) research content and music interventions.

The electronic database search results in 44 articles that met inclusion criteria. Eleven articles were excluded because of no report on outcomes in developmental domain such as physiology (20.4%), being a theoretical paper (2.3%), and being qualitative research design (2.3%). The number of research studies of searching process present in figure 4.1

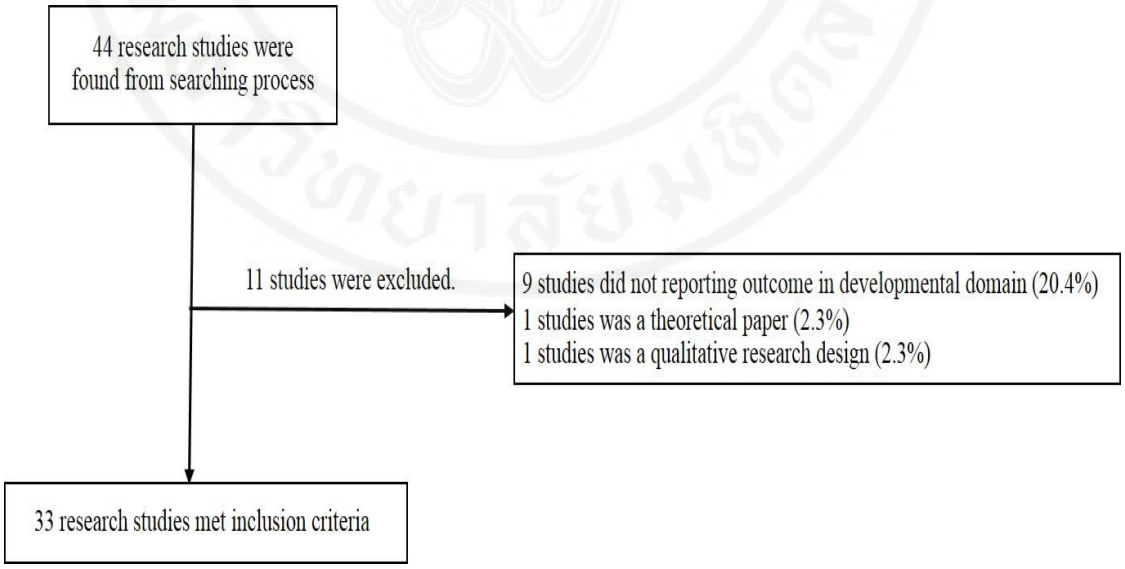

Figure 4.1 Number of the studies in a searching process.

4.1 The detail of research studies

This result included author, year of publication, goal, objective, population, music activity, music selection, music delivery, number of session, duration, and frequency. Details are shown in table 4.1.

Table 4.1 Detail of research studies

No.	Author/ Year	Goal	Objective	Population	Music activity	Music selection	Music delivery	Number of session	Duration	Frequency
01	Ventura et al.,2012	Emotion	Relaxation	Pregnant	Passive music listening	Evidenced base	Recorded music	1 session	30 mins	only one time
02	Mangus & Silverman, 2014	Emotion	Stress	Student	Integrated music activity	Evidenced base	Live music	1 session	45 mins	only one time
03	Bittman et al., 2003	Emotion	Burnout, stress	Employee	Integrated music activity	Evidenced base	Live music	6 sessions	60 mins	one time per week
04	Wachi et al., 2007	Emotion	Relaxation	Employee	Integrated music activity	Evidenced base	Live music	24 sessions	61 mins	one time per week
05	Hirokawa & Ohira, 2003	Emotion	Stress	Student	Passive music listening	Evidenced base	Recorded music	3 sessions	20 mins	only one time
06	Smith, 2008	Emotion	Anxiety	Employee	Music listening	Participant select from limited set	Live music	1 session	15 mins	only one time
07	Lesiuk, 2010	Cognitive, emotional	Work performance, stress	Employee	Passive music listening	Own collection	Recorded music	10 sessions	30 mins	one time per day
08	Hirokawa, 2004	Cognitive, emotional	Relaxation, work performance	Older adult	Passive music listening	Own collection	Recorded music	3 sessions	20 mins	one time per week
09	Bittman et al., 2001	Emotion	Anxiety	-	Playing instrument	-	Live music	1 session	45 mins	only one time
10	Hsieh & Kline, 2003	Cognitive, emotional	Work performance, stress	Employee	Passive music listening	Assessment	Recorded music	4 sessions	240 mins	-
11	Chang et al., 2008	Emotion	Stress	Pregnant	Passive music listening	Assessment	Recorded music	14 sessions	30 mins	one time per day

Table 4.1 Detail of research studies. (Continued)

No.	Author/ Year	Goal	Objective	Population	Music activity	Music selection	Music delivery	Number of session	Duration	Frequency
12	Lee et al., 2008	Emotion	Quality of life	Older adult	Passive music listening	Participant select from limited set	Recorded music	4 sessions	30 mins	one time per week
13	Arya et al., 2012	Physical	Behavior	Infant	Passive music listening	Evidenced base	Recorded music	14 sessions	50 mins	one time per day
14	Koyama et al., 2009	Emotion	Relaxation	Older adult	Integrated music activity	-	Recorded music	1 session	60 mins	only one time
15	Hoeft & Kern, 2007	Emotion	Relaxation	Student	Passive music listening	Evidenced base	Recorded music	1 session	30 sec	one time only
16	Hamburg & Clair, 2003	Physical	Gait performance	Older adult	Movement with music	Theory	Recorded music	14 sessions	60 mins	one time per week
17	Smith et al., 2010	Cognitive, emotional	Work performance, Relaxation	Student	Passive music listening	Evidenced base	Recorded music	1 session	10 mins	only one time
18	Kafali et al., 2011	Emotion	Anxiety	Pregnant	Passive music listening	Own collection	Recorded music	1 session	-	only one time
19	Kreutz et al., 2003	Emotion	Stress	-	Integrated music activity	Evidenced base	Live and recorded	1 session	60 mins	one time per week
20	Hilliard, 2006	Emotion, Social	Fatigue, team building	Employee	Playing instrument	Theory	Live music	6 sessions	60 mins	one time per week
21	Belgrave, 2011	Social	Team building	Children & Older	Integrated music activity	-	Live music	10 sessions	30 mins	one time per week
22	Bruin et al., 2015	Physical	Gait performance	Student	Movement with music	Participant select from limited set	Recorded music	-	30 sec	-

Table 4.1 Detail of research studies. (Continued)

No.	Author/ Year	Goal	Objective	Population	Music activity	Music selection	Music delivery	Number of session	Duration	Frequency
23	Silverman, 2006	Cognitive, emotional	Anxiety, Work performance	Student	Passive music listening	Evidenced base	Recorded music	1 session	7 mins	only one time
24	Dureau, 2005	Physical	Behavior, HR	Infant	Passive music listening	Evidenced base	Recorded music	1 session	21 mins	only one time
25	Norouzi et al.,2013	Emotional	Anxiety	Pregnant	Passive music listening	Evidenced base	Recorded music	1 session	30 mins	only one time
26	Staum & Brotons, 2000	Emotional	Relaxation	Student	Passive music listening	Evidenced base	Recorded music	1 session	27 mins	only one time
27	Luisuk, 2005	Cognitive	Work performance	Employee	Passive music listening	Own collection	Recorded music	35 sessions	all day	one time per day
28	Robb, 2000	Emotional	Relaxation	Student	Movement with music	Evidenced base	Recorded music	1 session	15 mins	only one time
29	Bittman et al., 2004	Emotion	Bumout	Student	Integrated music activity	Evidenced base	Live music	6 sessions	60 mins	one time per week
30	Silverman, 2007	Cognitive	Work performance	Student	Passive music listening	Evidenced base	Recorded music	1 session	4 mins	only one time
31	Bums et al., 2002	Emotion	Stress	Student	Passive music listening	Participant select from limited set	Recorded music	1 session	30 mins	only one time
32	Knight, 2001	Emotion	Anxiety	Student	Passive music listening	Evidenced base	Recorded music	1 session	20 mins	only one time
33	Bittman et al., 2005	Emotion	Stress	-	Integrated music activity	-	Live music	-	60 mins	-

4.2 The results of research characteristics in publications and researchers

The results of research characteristics in publications and researchers revealed that most of the studies were published during 2000 - 2005 (45.5%), followed by 2006 - 2010 (30.3%), and 2011 - 2015 (24.2%). Regarding to publication of sources, most articles were published in journal in the field of music therapy (42.4%), follow by journal in medical field (18.2%), and nursing field (15.2%). Most of researchers were Doctoral degree with music therapy credential(s) and Master degree have the same percentage at 27.3, follow by Master degree with music therapy credential(s) (12.1%), Doctoral degree (3.0%), and other (3.0%). Moreover, many studies did not report degree of researcher (27.3%). Details are shown in Table 4.2.

Table 4.2 Frequency and percentages of research characteristics in publications and researchers

Research characteristics	f	%
Year of publication		
2000 - 2005	15	45.5
2006 - 2010	10	30.3
2011 - 2015	8	24.2
Total	33	100.0
Publication of sources		
Music Therapy Journal	14	42.4
Medical Journal	6	18.2
Nursing Journal	5	15.2
General Psychology Journal	4	12.1
Others	4	12.1
Total	33	100.0
Degree of researchers		
Master degree	9	27.3
Master degree with music therapy credential (s)	4	12.1
Doctoral degree	1	3.0
Doctoral degree with music therapy credential (s)	9	27.3
Not applicable	9	27.3
Others	1	3.0
Total	33	100.0

4.3 The results of research characteristics in research methodology

The research methodology characteristics were classified in percentage as followed: the most experimental design was randomized control-group pretest-posttest (39.4%), follow by pretest-posttest design with nonequivalent group (12.1%), and control-group pretest-posttest time series (9.1%). Regarding the sample size of studies, the greatest number were range 1 - 50 participants (42.4%), follow by range 51 - 100 (30.3%), 101 - 150 (15.2%), 201 - 250 (9.1%), and more than 251 participants (3%). In terms of selection method, most experimental techniques were assigned participants to different groups in experiment by randomization (75.8%), follow by selection and assignment (18.2%). However, six studies did not reported method for selection participants (18.2%). Regarding to type of assessment tool, most articles used psychological test (58.6%), follow by physiological test (13.8%), social activity test (9.2%), intellectual and work performance test (9.2%), behavioral test (4.6%), and physical test (4.6%). Mention to data analysis of studies, the most type of analysis were one-way ANOVA (27.3%), follow by t-test independent (21.2%), and ANCOVA (18.2%). Details of frequency and percentage are shown in Table 4.3.

Table 4.3 Frequency and percentages of research characteristic in research methodology

Research characteristics	**f**	**%**
Experimental research design		
One group pretest-posttest design	2	6.1
One group posttest only design	1	3.0
One group pretest-posttest time-series design	2	6.1
Pretest-Posttest design with nonequivalent group	4	12.1
Control-group pretest-posttest time-series design	3	9.1
Randomized control-group posttest only design	1	3.0
Randomized control-group pretest-posttest design	13	39.4
Single-case design (A-B)	1	3.0
Single-case design (A-B-A)	2	6.1
Other	4	12.1
Total	33	100.0
Sample size		
1 - 50	14	42.4
51 - 100	10	30.3
101 - 150	5	15.2
201 - 250	3	9.1

Table 4.3 Frequency and percentages of research characteristic in research methodology. (Continued)

Research characteristics		f	%
Sample size (continued)			
Above 251		1	3.0
	Total	33	100.0
Selection of participant			
Random assignment		25	75.8
Selection and assignment		2	6.1
Not applicable		6	18.2
	Total	33	100.0
Assessment tool			
Psychological test		38	58.6
Physiological test		9	13.8
Social activity test		6	9.2
Intellectual and work performance test		6	9.2
Behavioral test		3	4.6
Physical test		3	4.6
	Total	65	100.0
Data analysis			
Descriptive statistics		3	9.1
t-test dependent		1	3.0
t-test independent		7	21.2
One-Way ANOVA		9	27.3
Two-Way ANOVA		2	6.1
Three-Way ANOVA		1	3.0
One-Way MANOVA		1	3.0
ANCOVA		6	18.2
Not applicable		1	3.0
Others		2	6.1
	Total	33	100.0

4.4 The results of research characteristics in research content and music interventions

The results of research content and music interventions revealed that most of therapeutic goals in wellness studies were anxiety and work performance (16.6%), follow by stress (14.3%), and relaxation (9.6%). Mention to population in studies, the greatest number were student (36.4%), follow by employee (21.2%), pregnancy women (12.1%), older adult (12.1%), and infant (6.1%). That results initiate about age

of participants in studies were early adulthood (33.3%), followed by mixed of early adulthood and middle age (24.2%), and not applicable (21.2%).

In music interventions part, it was divided into seven sub-topics including intervention strategy, music selection process, music delivery method, clustering of session, number of session, duration of each session, and frequency. Regarding to intervention strategy, the majority of studies used passive music listening (60.6%) as intervention strategy, followed by integrated music intervention (21.2%), playing instrument (9.1%), and movement with music (9.1%). The greatest number of method to selected music in experiment was selected by researcher on evidenced-base (48.5%), followed by participants selected from limited set (12.1%), and selected from participants own collection (12.1%). However some studies did not explain process to select music in experiment (12.1%). Regarding to music delivery method, most studies used recorded music with participants (69.7%), followed by live music (27.3%). Only one study uses both live and recorded music (3%) with participants. In terms of clustering in each session, most articles designed studies for group session (48.5%), followed by individual session (45.5%), and some articles did not report group setting in session (6.1%). Mention to number of session in experiments, most of studies used number of sessions in range 1 - 5 sessions (63.6%), followed by range 6 - 10 sessions (15.2%), and 11 - 15 sessions (9.1%). The greatest number of duration of session in experiment was less than 30 minutes (57.6%), followed by 46 - 60 minutes (27.3%), 31 - 35 minutes (6.1%), and more than 90 minutes (6.1%). Regarding to frequency of session, most articles did session only one time (48.5%), followed by appointment session one time per week (30.3%), and one time per day (12.1%).

The result of outcomes as developmental domain that most studies reported outcome in emotional domain (70.0%), followed by intellectual domain (12.5%), physical domain (10.0%), and social domain (7.5%). Regarding to testing result, most studies found testing result were significant at .05 in some variables (48.4%), followed by significant at .05 all variables (12.1%), and no significant at .05 (12.1%). Details are shown in Table 4.4.

Table 4.4 Frequency and percentage of research characteristics in research content and music interventions

Research characteristics	f	%
Therapeutic goal		
Anxiety	7	16.6
Neuroendocrine	3	7.1
Relaxation	4	9.6
Burnout	2	4.8
Immune cell	2	4.8
Heart rate	3	7.1
Stress	6	14.3
Work performance	7	16.6
Quality of life	1	2.4
Behavior	3	7.1
Gait performance	2	4.8
Team building	2	4.8
Total	42	100.0
Population		
Student	12	36.4
Employee	7	21.2
Pregnancy women	4	12.1
Older adult	4	12.1
Infant	2	6.1
Not applicable	4	12.1
Total	33	100.0
Age of participant		
Infant (0 - 2 years old)	2	6.1
Early adulthood (18 - 40 years old)	11	33.3
Old age (above 60 years old)	3	9.1
Early adulthood and middle age (18 - 60 years old)	8	24.2
Not applicable	7	21.2
Others	2	6.1
Total	33	100.0
Intervention strategy / Music activity		
Passive listening	20	60.6
Playing instrument	3	9.1
Movement with music	3	9.1
Integrated music intervention	7	21.2
Total	33	100.0
Music selection process		
Selected by researcher based on assessment	3	9.1
Selected by researcher on evidenced-base	16	48.5
Develop base on theory	2	6.1
Participant selected from limited set	4	12.1

Table 4.4 Frequency and percentage of research characteristics in research content and music interventions. (Continued)

Research characteristics		f	%
Participant own collection		4	12.1
Not applicable		4	12.1
	Total	33	100.0
.*Music delivery method*			
Live music		9	27.3
Recorded music		23	69.7
Live and recorded music		1	3.0
	Total	33	100.0
Clustering of session			
Individual session		15	45.5
Group session		16	48.5
Not applicable		2	6.1
	Total	33	100.0
Number of session			
1 - 5 sessions		21	63.6
6 - 10 sessions		5	15.2
11 - 15 sessions		3	9.1
21 - 25 sessions		2	6.1
Not applicable		2	6.1
	Total	33	100.0
Duration of each session			
Less than 30 minutes		19	57.6
31 - 35 minutes		2	6.1
46 - 60 minutes		9	27.3
Above 90 minutes		2	6.1
Not applicable		1	3.0
	Total	33	100.0
Frequency of session			
One time per week		10	30.3
One time per day		4	12.1
Only one time		16	48.5
Not applicable		2	6.1
Others		1	3.0
	Total	33	100.0
Outcome as developmental domains			
Emotional		28	70.0
Physical		4	10.0
Intellectual / Cognitive		5	12.5
Social		3	7.5
Communication		0	0.0
	Total	40	100.0

Table 4.4 Frequency and percentage of research characteristics in research content and music interventions. (Continued)

Research characteristics	f	%
Testing results		
No significant at .01	2	6.1
No significant at .05	4	12.1
Significant at .01 all variable	3	9.1
Significant at .05 all variable	4	12.1
Significant at .01 in some variable	3	9.1
Significant at .05 in some variable	16	48.4
No significant at .06	1	3.0
Total	33	100.0

CHAPTER V
DISCUSSION AND RECOMMENDATION

5.1 Discussion

5.1.1 Publications and researchers

The result of publication year was discussed in this part. This study presented that most research studies were published during 2000 - 2005 (45.5%). Karl T Bruhn, Father of music making wellness, supported many studies about wellness in normal population including employee (Bittman et al., 2003; Porter, 2001) and student (Bittman et al., 2004) at that time period. Moreover, in 1995 The Music Making and Wellness Research Team were formed (Koga & Tim, 2001). There were cooperated expert in many field such as medicine, biochemistry, psychology, psychiatry, aging, music therapy. Thus wellness research studies were published mostly in early twenty first century.

5.1.2 Research methodology

Sample size

In terms of the sample size, some researches use less than 50 participants but in some use more than 250 participants. In case of small sample size, there are some limitations of study. Firstly the characteristics of the participant, which the sample specified to old ages who are healthy including no stress and anxiety related illness, general health problem, and Alzheimer (Hirokawa, 2004; Hamburg & Clair, 2003; Belgrave, 2011). Secondly, the complication of procedures in collecting data such as collecting blood test, and using questionnaires that require long range of period in collecting samples (Lesiuk, 2010; Wachi et al., 2007; Hirokawa & Ohira, 2003).

Meanwhile large sample size in studies comes from researchers who can easily approach selected participants in institutes such as schools, companies and hospitals. For example, Bittman (2001), CEO and medical director of Meadville

Medical Center's Mind-Body Wellness Center, recruited participants from there. Ventura (2011) who work at Dona Estefania Hospital collected data from obstetrics department.

Assessment tool

The result of synthesis in assessment tools presented that the most common assessment tools were psychological test such as the State and Trait Anxiety Inventory (SAIT) and Profiles of Mood state (POMs). Almost music therapy studies were interested in emotional dimension because healthy populations concern in mental health and music can regulate emotions (Laukka, 2007). The next mainly assessment tools were physiological test for measuring immune system such as blood collection and salivary swab. Because most studies that focus on mental health were measuring subjective variables; therefore, researcher would measuring both minds and immune functional data to convince a strong evidence (Watt et al., 1998; Ventura et al., 2011; Wachi et al., 2007; Hirokawa & Ohira, 2003; Kreutz et al., 2004; Bittman et al., 2005). Nevertheless, the clinical method to collect samples need cooperate with laboratory technicians and nurses.

5.1.3 Research content and music interventions

Therapeutic goal

According to the result from therapeutic goal, there are 16.6% of studies focus on anxiety and 14.3% focus on stress. This fit with everyday life of most people will face with stress and anxiety that a cause factor in both physical and psychological illness (Burns et al., 2002). In addition to, studied participants are mostly in early adulthood who have ability to control emotion less than older adulthood. Not only in worker, there are found in undergraduates as well (Berngtson et al., 2008).

Moreover, work performance was shown as most frequent therapeutic goal from all studies (16.6%). In this study, work performance has also included the intelligence, memory, and focus abilities. According to the research from Anxiety Disorders Association of America the main factor affecting stress in workplace is caused by an anxiety on work performance (ADAA, 2006). As a result, there are many studies focus on stress or anxiety along with work performance.

Intervention strategy

Passive listening is an intervention that is most commonly found in making music for wellness studies (60.6%). The reasons were as followed: First, music listening is a very popular technique to reduce stress (Hanser, 1988). In the past, there are a lot of studies on passive music listening in medical settings such as NICU, pre-post operation (Cassidy & Standley, 1995; Evans, 2002). Second, passive music listening helps to reduce anxiety in a group of non-musicians as they attend music therapy session because it is not too complicated to play the music. Third, music listening can easily go with on-going activities such as progressive muscle relaxation technique, exercise, behavioral technique (Robb, 2000; Evans, 2002; Emery et al., 2003). And finally, passive music listening has a collateral goal with emotional wellness dimension. Meaning to say it helps to sooth stress and anxiety, and also increase positive mood. A research literature has provided strong evidence to music listening that it has influences on emotional state and immune function (Hirokawa & Ohira, 2003).

Music selection process and delivery method

Although may researchers claimed that the use of live music is more effective than recorded music (Bailey, 1983), a synthesis research showed that most wellness studies used recorded music for healthy person. The reasons are as followed: First, 60.6% of researchers are not trained to use music as professional for therapeutic outcome. Consequently, using recorded music is easily managed more than live music. Second, the use of recorded music is appropriate for some researches experimental setting. For example, pregnant participants were given the prerecorded CD and asked to listen to music at least 30 minutes a day for two weeks at any time during the day (Chang, Chen & Huang, 2008). Lesuik (2005) has suggested that music listening based on worker's choice to listen 'when they want', is advantage for positive mood state and quality of work.

Number and duration of session

According to number and duration of session, there are mainly studies of music for wellness research that use only one session and spend duration in each session less than 30 minutes (36.3%). Base on concept of music therapy that aims to use music to facilitate clients reach individual needs. And most healthy people in the studies face with emotional problem and need ability to regulate it (Allison & Iris, 2011). Therefore,

the design music therapy session for emotional regulation is appropriate in one session (Mangus & Silverman, 2014; Burns et al., 2002; Smith, 2008; Bittman et al., 2001; Kafali et al., 2011; Silverman, 2006; Norouzi et al.,2013; Knight, 2001).

Outcome as developmental domain

For the outcome, most studies are focus on emotional domain. Because several studies have suggested that the most common goal of musical experiences was to influence emotions. People used music to change emotions, to release emotions, to match their current emotion, to enjoy or comfort themselves, and to relieve stress (Juslin & Vastfjall, 2008; Juslin et al., 2011). Based on clearly benefits of music to regulate emotions might guide music for wellness studies focus on emotional domain.

5.2 Recommendation

5.2.1 Future research

The result from conducting systematic review on wellness in healthy population shows that there are a lot of researches on emotional dimension but a few on cognitive and physical dimensions. In fact, there are only two studies conducting research on social dimension (Hilliard, 2006; Belgrave, 2011). Therefore, it is recommended for researchers who are interested in this field to continue future studies in physical development, cognition and social for best clinical practices.

For the method of experimental researches, the recommendation is to use randomized control-group group pretest-posttest because it is an excellence experimental design and susceptible to numerous validity threats in study (Cook & Beckham, 2008). The recommendation for a larger sample size and comfortable to approach participants is that researchers should contact institutes or companies. For the ill health population, it is recommended to extend further research to gain benefits from musical therapy in medical setting. Nevertheless, other populations are still needed to study deeper on cognitive dimension for students and employees while older adults in physical, cognitive, and social dimension.

5.2.2 Implications for music in wellness

The result of the systematic review showed guidelines for the use of music in session. The goals of using music should cover emotion, cognition, physical development, and social. Music interventions in sessions should be differently prepared according to the goal.

To approach emotional dimension, this systematic review has shown that stress, anxiety, relaxation and burn out are set in therapeutic goals. Firstly, to reduce stress, the use of passive music listening is applied through opening a recorded music or the use of integrated music activity is applied through playing live music. Music should be selected by therapists based on research evidence. For this purpose, music session should plan 1 - 14 sessions, and period range from 30 - 60 minutes (Mangus & Silverman, 2014; Bittman et al., 2003; Hirokawa & Ohira, 2003; Lesiuk, 2010; Hsieh & Kline, 2003; Chang et al., 2008; Kreutz et al., 2003; Burns et al., 2002). Secondly, to reduce anxiety, therapists can select using passive music listening or playing instruments. The session is designed for once spending less than 30 minutes in order to improve anxiety emotion (Smith, 2008; Bittman et al., 2001; Kafali et al., 2011; Silverman, 2006; Norouzi et al., 2013; Knight, 2001). Thirdly, to increase relaxation, passive music listening is recommended by using recorded music. The design for the study is 1 - 3 session and each session spends 30 - 60 minutes (Ventura et al., 2012; Wachi et al., 2007; Hirokawa, 2004; Koyama et al., 2009; Hoeft & Kern, 2007; Smith et al., 2010; Staum & Brotons, 2000; Robb, 2000). Finally, to reduce burn out, music intervention is selected by using referred program of integrated music activity. This is done using live music, divided into 6 sessions and 60 minutes each (Bittman et al., 2003; Hilliard, 2006; Bittman et al., 2004).

For cognitive dimension, the therapeutic goal is set to increase work performance. Music therapist can use passive music listening by choosing from the recorded music, either from research base or from a range of music collection the participant selected. The session shall be designed as 1 - 4 session and each session not more than 30 minutes (Hirokawa, 2004; Hsieh & Kline, 2003; Smith et al., 2010; Silverman, 2006; Luisuk, 2005; Silverman, 2007).

For physical development, there are two objectives which are gait performance and behavior. Firstly, gait performance use music activity through

movement with recorded musics that select from theory. The session plan can be 14 session and each spend 60 minutes per session (Hamburg & Clair, 2003; Bruin et al., 2015). Secondly, the behavior is studied only in the infant population. The session is recommended to use passive music listening. Using recorded music from research studies, it shall be designed as 1 - 14 sessions and each spend 20 - 60 minutes per session (Arya et al., 2012; Dureau, 2005).

The last objective is on social dimension. The objective is to develop team building. Using integrated music activity by choosing live music from research base and theory, the plan for therapy will use 6 - 10 session and each session spends 30 - 60 minutes (Hilliard, 2006; Belgrave, 2011).

For the goal of communication domain are still lack of experimental researches. Details of music intervention guidelines for wellness in healthy populations is presented in table 5.1

Table 5.1 music intervention guidelines for wellness in healthy populations

Goal	Objective	Population	Music activity	Music selection	Music delivery	Number of session	Duration	Frequency	Ref
Emotion	Stress	-Employee -Student -Pregnant	-Passive music listening -Integrative music activity	-Evidenced base -Assessment	-Live music -Recorded music	1-14 sessions	30-60 mins	one time per week	02, 03, 05, 07, 10, 11, 19, 31, 33
	Anxiety	-Employee -Student -Pregnant	-Passive music listening -Playing instrument	-Evidenced base	-Live music -Recorded music	1 session	< 30 mins	only one time	06, 09, 18, 23, 25, 32
	Relaxation	-Employee -Student -Pregnant -Older adult	-Passive music listening	-Evidenced base	-Recorded music	1-3 sessions	30-60 mins	one time per week	01, 04, 08, 14, 15, 17, 26, 28
	Burnout, fatigue	-Employee -Student	-Integrative music activity	-Evidenced base	-Live music	6 sessions	60 mins	one time per week	03, 20, 29
Cognition	Work performance	-Employee -Student -Older adult	-Passive music listening	-Evidenced base -Participant's collection	-Recorded music	1-4 sessions	< 30 mins	one time per day	08, 10, 17, 23, 27, 30
Physical development	Gait performance	-Student -Older adult	-Movement with music	-Base on theory -Select from limited set	-Recorded music	14 sessions	60 mins	one time per day	16, 22
	Behavior	-Infant	-Passive music listening	-Evidenced base	-Recorded music	1-14 sessions	20-60 mins	one time per day	13, 24
Social	team building	-Employee -Older adult	-Integrate music activity	-Evidenced base -Base on theory	-Live music	6-10 sessions	30-60 mins	one time per week	20, 21

CHAPTER VI
CONCLUSION

This study employed a systematic review used to synthesize research studies as a secondary source in the areas of using music therapy in wellness for healthy populations. A systematic review is the methodology of synthesizing earlier researches to evaluate treatment approaches, the result of the therapy, and to decide on planning policy (Hanson-Abromeit & Sena, 2014). Nowadays, people are becoming more aware of building wellness in healthy people, in which it is the science of protecting from illness. Owing to the lack of information and not yet synthesize, this research will be benefit for music therapist and other professional to select and design music interventions in healthy population effectively as referred to the evidence based.

The purpose of this study was to synthesize research in music interventions in wellness. There are three main characteristics that were analyzed, comprising 1) publications and researchers, 2) research methodology, and 3) research content and music interventions.

This research study conducted published research article through electronic databases and electronic journals between 2000 to 2015, including Science Direct, ProQuest, Google Scholar, university database, Journal of Music Therapy, Australian Journal of Music Therapy, The Art in Psychotherapy, Psycho neuroendocrinology and Journal of Clinical Nursing. The keywords for searching were “music therapy intervention for wellness in healthy people”, “music intervention for wellness”, “music for wellness in healthy people”, “music for wellness in pregnant”, “music for wellness in workplace”, and “music for wellness in student”. Finally, a search is guided from the reference lists of retrieved studies to identify any studies missed during the database searches.

A coding form was developed by researcher with other music therapist consultant for address the data in this study. The data related to the objective was

extracted and put to SPSS program for analyze. Descriptive statistics (frequency and percentages) were used to analyze the data and describe the research findings.

Regarding to data collected, thirty three research studies met inclusion criteria. The result of this synthesis reported that most of the studies were published in journal in the field of music therapy (42.4%), follow by journal in medical field (18.2%), and nursing field (15.2%). There were published during the years 2000 - 2005 (45.5%), followed by 2006 - 2010 (30.3%), and 2011 - 2015 (24.2%). The most experimental design was randomized control-group pretest-posttest (39.4%), follow by pretest-posttest design with nonequivalent group (12.1%), and control-group pretest-posttest time series (9.1%). The greatest number of sample size were range 1 - 50 participants (42.4%), follow by range 51 - 100 (30.3%). Most populations in the studies were student (36.4%), follow by employee (21.2%). Most studies reported outcome in emotional domain (70.0%), follow by intellectual domain (12.5%). The result of studies set anxiety and work performance (16.6%) as a therapeutic goals, follow by stress (14.3%), and relaxation (9.6%).

The results of research content and music intervention presented that passive music listening (60.6%) was mainly used as intervention strategy in session, follow by integrated music intervention (21.2%). The greatest number of researchers selected music base on evidenced (48.5%), follow by participants selected from limited set (12.1%). Recorded music was the most used with participants (69.7%), follow by live music (27.3%). Only one study uses both live and recorded music (3%) with participants. Duration of session was mainly presented less than 30 minutes (57.6%), follow by 46 - 60 minutes (27.3%). Most articles did session only one time (48.5%), follow by appointment session one time per week (30.3%).

This systematic review of music therapy for wellness in healthy populations is a preliminary approach benefit to recommend more effective treatments. However, the studies in healthy populations have a broader scope and many variables that have limited to control, such as race, culture, faith and music prefer etc. Therefore, this study need further research to develop guideline for music therapy session in the future.

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APENDICES

APPENDIX A

Coding Form

Code: ☐☐☐

Title: ……..……..……

Author name: …… Year of publication: ……..

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1. Publications and researchers

1.1 Year of publication ☐☐

1.2 Publication of sources ☐☐

1.3 Degree of researchers ☐☐

2. Research methodology

2.1 Experimental research design ☐☐

2.2 Sample size ☐☐

2.3 Selection of participant ☐☐

2.4 Assessment tool

Psychological test ☐☐ Physiological test ☐☐

Social activity test ☐☐ Behavioral test ☐☐

Physical test ☐☐

Intellectual and work performance test ☐☐

2.5 Data analysis ☐☐

3. Research content and music interventions

3.1 Population of participant ☐☐

3.2 Age of participant ☐☐

3.3 Intervention

3.3.1 Intervention strategy/Music activity ☐☐

3.3.2 Music selection process ☐☐

3.3.3 Music delivery method ☐☐

3.3.4 Clustering of session ☐☐

3.3.5 Number of session ☐☐

3.3.6 Duration of session ☐☐

3.3.7 Frequency of session ☐☐

3.4 Outcomes

Emotional ☐☐ Physical ☐☐ Intellectual ☐☐

Social ☐☐ Physiology ☐☐ Economic ☐☐

Occupational ☐☐

3.5 Testing results ☐☐

APPENDIX B

Coding Manual

No	Variable	Code
1.Publications and researchers		
1.1	Year of publication	01 = 2000 – 2005 02 = 2006 – 2010 03 = 2011 – 2015
1.2	Publication of sources	01 = Music Therapy Journal 02 = Medical Journal 03 = Nursing Journal 04 = General Psychology Journal 05 = Others.
1.3	Degree of researchers	01 = Master degree 02 = Master degree with Music Therapy credential(s) 03 = Doctoral degree 04 = Doctoral degree with Music Therapy credential(s) 05 = Not applicable 06 = Others.
2.Research methodology		
2.1	Experimental research design	01 = One group pretest - posttest design 02 = One group posttest only design 03 = One group pretest - posttest time-series design 04 = Posttest Design with Nonequivalent Groups

No	Variable	Code
	Experimental research design (continue)	05 = Pretest-Posttest Design with Nonequivalent Groups 06 = Control-group pretest-posttest time-series design 07 = Randomized control-group posttest-only designs 08 = Randomized control-group pretest-posttest designs 09 = Randomized Solomon four-group design 10 = Single-case design (A-B) 11 = Single-case design (A-B-A) 12 = Single-case design (A-B-A-B) 13 = Others
2.2	Sample size	01 = 1 - 50 02 = 51 - 100 03 = 101 - 150 04 = 151 - 200 05 = 201 - 250 06 = above 250
2.3	Selection of participant	01 = Selection 02 = Random assignment 03 = Selection and assignment 04 = Not applicable
2.4	Assessment tool Psychological test Physiological test Social activity test	 01 - 10 01 - 10 01 - 10

No	Variable	Code
	Intellectual and work performance test	01 - 10
	Behavioral test	01 - 10
	Physical test	01 - 10
2.5	Data analysis	01 = Content analysis 02 = Descriptive statistic 03 = t-test dependent 04 = t-test independent 05 = One-Way ANOVA 06 = Two-Way ANOVA 07 = Three-Way ANOVA 08 = Z-test 09 = One-Way MANOVA 10 = Two-Way MANOVA 11 = Three-Way MANOVA 12 = ANCOVA 13 = Not applicable 14 = Others.
3. Research content and music interventions		
3.1	Population	01 = Student 02 = Employee 03 = Pregnancy women 04 = Older adult 05 = Infant 06 = Other
3.2	Age of participant	01 = Infant (0 – 2 years old) 02 = Early childhood (2 – 6 years old)

No	Variable	Code
	Age of participant (continue)	03 = Late Childhood (6 – 12 years old) 04 = Adolescence (12 – 18 years old) 05 = Early adulthood (18 – 40 years old) 06 = Middle age (40 – 60 years old) 07 = Old age (60 – above 60 years old) 08 = Early adulthood and Middle age (18 - 60 years old)
3.3	Interventions	
3.3.1	Intervention strategy/ Music activity	01 = Singing 02 = Passive listening 03 = Playing instrument 04 = Movement 05 = Not applicable 06 = Integrated music intervention
3.3.2	Music selection process	01 = Selected by researcher based on assessment 02 = Selected by researcher based on evidence 03 = Develop based on theory 04 = Participant selected from limited set 05 = Participants own collection 06 = Composed 07 = Not applicable
3.3.3	Music delivery method	01 = Live music 02 = Recorded music 03 = Live and recorded music 04 = Not applicable
3.3.4	Clustering of session	01 = Individual session 02 = Group session

No	Variable	Code
		03 = Individual and Group session 04 = Not applicable 05 = Others
3.3.5	Number of session	01 = 1 - 5 sessions 02 = 6 - 10 sessions 03 = 11 - 15 sessions 04 = 16 - 20 sessions 05 = 21 - 25 sessions
3.3.6	Duration of each session	01 = 15 - 30 Minutes 02 = 31 - 45 Minutes 03 = 46 - 60 Minutes 04 = 61 - 75 Minutes 05 = 76 - 90 Minutes 06 = above 90 Minutes
3.3.7	Frequency of session	01 = One time per week 02 = Two times per week 03 = One time per month 04 = Two times per month 05 = One time per day 06 = Only one time 07 = Not applicable 08 = Others
3.4	Outcomes Emotional Physical Intellectual Social	 00=No 01=Yes 00=No 01=Yes

No	Variable	Code
	Physical Economic Occupational	00=No 01=Yes 00=No 01=Yes 00=No 01=Yes 00=No 01=Yes 00=No 01=Yes
3.5	Testing results	01 = No significant at .01 02 = No significant at.05 03 = Significant at .01 all variable 04 = Significant at.05 all variable 05 = Significant at .01 in some variable 06 = Significant at.05 in some variable 07 = No significant at .006 08 = According to hypothesis (If no statistic test) 09 = Not according to hypothesis (If no statistic test)

APPENDIX C

Checklist for Reporting Music-based Interventions (Robb et al., 2010)

Music-based Intervention Reporting Criteria
A: Intervention Theory Provide a rationale for the music selected; specify how qualities and delivery of the music are expected to impact targeted outcomes.
B: Intervention Content Provide precise details of the music intervention and, when applicable, descriptions of procedures for tailoring interventions to individual participants.
B.1: Person Selecting the Music Specify who selected the music: (1) pre-selected by investigator, (2) participant selected from limited set, (3) participant selected from own collection, or (4) tailored based on patient assessment.
B.2: Music When using published music, provide reference for sheet music or sound recording. When using improvised or original music, describe the music's overall structure (i.e., form, elements, instruments, etc).
B.3: Music Delivery Method (Live or Recorded) When using live music, specify who delivered the music and the size of the performance group (e.g., interventionist only, interventionist and participant). When using recorded music, specify placement of playback equipment and the use of headphones vs. speakers. Specify who determined/controlled volume (e.g., interventionist; participant. Specify decibel level of music delivered and/or use of volume controls to limit decibels.
B.4: Intervention Materials Specify music and/or non-music materials.
B.5: Intervention Strategies Describe music-based intervention strategies under investigation (examples: music listening, songwriting, improvisation, lyric analysis, rhythmic auditory stimulation, etc).
C: Intervention Delivery Schedule Report number of sessions, session duration, and session frequency including practice sessions
D: Interventionist Specify interventionist qualifications and credentials. Specify how many interventionists deliver study conditions.
E: Treatment Fidelity Describe strategies used to ensure that treatment and/or control conditions were delivered as intended (e.g., interventionist training, manualized protocols, and intervention monitoring).

F: Setting Describe where the intervention was delivered; include location, privacy level, and ambient sound.
G: Unit of Delivery Specify whether interventions were delivered to individuals or groups of individuals, including the size of the group.

APPENDIX D

Human Subjects Approval Document

Certificate of Exemption from Ethical Review

The Committee for Research Ethics (Social Sciences)

★★★★★★★★★★★★

Certificate of Exemption No.: 2015/058.1310
MU-SSIRB No.: 2015/403 (B1)
Title of Project: MUSIC INTERVENTIONS FOR WELLNESS IN HEALTHY POPULATIONS: A SYSTEMATIC REVIEW
Principal Investigator: Miss Kulanan Imsawang
Name of Institution: College of Music, Mahidol University

The Committee for Research Ethics (Social Sciences) is in full compliance with International Guidelines of Human Research Protection such as Declaration of Helsinki, The Belmont Report, CIOMS Guidelines and the International Conference on Harmonization in Good Clinical Practice (ICH-GCP)

Date of Determination: October 13, 2015

Chairman

(Emeritus Professor Dr.Santhat Sermsri)

Head of the Institute

(Assoc.Prof.Dr.Wariya Chinwanno)
Dean of Faculty of Social Sciences and Humanities

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