

Role of Music in Clinical Acupuncture: A Cross Cultural Investigation

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Abstract. To compare and contrast music listening experiences in healthcare settings across culturally, this study aims to investigate value of music in allied healthcare. Mixed-method study was conducted on the platform of acupuncture clinic in Scotland, UK. 24 clients undertaking acupuncture treatment for back pain took parts, including 12 with Scottish cultural background and 12 with Chinese cultural background (14 females and 10 males, age ranging from 29 to 65, mean = 40.5). Self-assessed levels of physical pain, emotional pain, stress, relaxation and energy were taken before and after acupuncture treatment with and without preferred music alongside, followed by a post-study interview. Results indicated music intervention could enhance treatment effects. Anti-stress effect of preferred music was show in both cultures. Physical, emotional pain and stress level was significantly reduced after acupuncture treatment with the enjoyment of preferred music. Relaxation level was found more significantly increased among Chinese, whereas Scottish participants showed higher energy gaining. Soft and melodically music was the major characteristics of music chosen by Chinese clients, whereas Scottish preferred fast beat and energetic music to play along. Qualitative data highlighted more 'pleasant', 'relaxing' and 'familiar' environment created by music, which also eased possible tension caused by acupuncture itself by 'attending to favored music'. Preferred music created a sanctuary for physical and emotional rest. Further exploration of chosen music and relationship with listener may contribute towards more effective application of music to promote health and wellbeing in multi-cultural contexts.

Keywords. Cross-cultural healthcare, emotional pain, music, physical pain, stress

1 Introduction

Similar to wind in nature, although music cannot be seen directly with human eyes, we get to know it through its sound and effects. Much more than a means of entertainment, music can be amazing force and energy that effectively 'touches' our body and mind. Therapeutic value of music has been recognized in all cultures and used in healing since ancient times. Yet, as our knowledge of the physical body rapidly in-

creasing and great development occurring in the use of medicine, the appreciation of musical healing has become neglected and considered insignificant. The word ‘medicine’ is derived from Latin expression ‘ars medicina’, which means ‘the art of healing’. Unfortunately, the concept of ‘medicine’ has been narrowed down and mainly refers to pharmaceutical drugs and health is mainly focused on curing our physical body. Something unseen has been missing in the modern concept of healing.

However, in the ancient West, music and medicine were considered to be ‘sister disciplines’ and used in assistant to each other for the purpose of healing [1]. Being valued as a profound art form of healing, music itself also reflected higher quality of life and had a significant role in ancient Greek society.

Daily regime of singing and playing instrument were promoted by Pythagoras (circa 570–495BC) to help maintain healthy stage of mind. Father of western medicine, Greek physician Hippocrates (460–370 BC), one of the most outstanding figures in medicine, introduced musical treatment to patients in 400BC. It was proposed in Greek philosophy that conflicts between the four elements (earth, water, air and fire) and the four qualities (heat, cold, dry and moist) would result in four humors (black bile, phlegm, blood and yellow bile) (see Table I) [2], [3].

Supported by Galen (129–200/216AD), a prominent Roman physician, surgeon and philosopher, correct type of music could be prescribed to the suitable person to influence these humors and their respective temperaments of melancholic, phlegmatic, sanguine and choleric. Music written in Mixolydian, Dorian, Lydian and Phrygian modes were the most frequently prescribed music types [4].

TABLE I: FOUR ESSENTIALS IN GREEK PHILOSOPHY

4 Elements	Earth	Water	Air	Fire
4 Qualities	Heat	Cold	Dry	Moist
4 Humors	Black Bile	Phlegm	Blood	Yellow Bile
4 Temperaments of Humors	Melancholic	Phlegmatic	Sanguine	Choleric
4 Modes of Music	Mixolydian	Dorian	Lydian	Phrygian

The significance of music in healing is consistent in the East. Inevitably, traditional Chinese character, created around 2650 BC in the period of the Yellow Emperor, medicine (藥) is a combination of music (樂) and herbs (草). It was clearly written in

the prestigious ancient medicine textbook, Inner Canon of Huang Di 《黄帝内经》, collected in the Warring States period (475-221BC) and early Han period (206BC–220AD), that before the use of herbs or acupuncture, musical compositions were applied to heal. It is believed in Traditional Chinese Medicine that herbs treat primarily the visible physical body and music has the power of healing invisible emotional being. The visible and invisible are closely linked to each other and inseparable. It should not be the visible part of our physical body that we attend to, as emotional wellness plays an important part in physical health and has impact on overall wellbeing. World Health Organization defined ‘health’ as ‘a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity’ [5]. Literally, Chinese word for ‘health’ (健康) does not mean the absence of illness but refer to being in total harmony and well-balanced being [6].

It says that a good doctor heals the nation; a moderate doctor heals a person; a poor doctor heals the illness. Seeing body and mind as a whole, TCM considered that emotional and physical health are intimately linked to each other. Illness is seen as the manifestation of imbalanced physical and emotional wellbeing. Emotion, considered as the external phenomenon of internal reactions, including joy (喜), anger (怒), worry (忧), fear (恐) and sadness (悲), are believed linked with five main inner organs respectively. For example, sudden joy can affect heart immensely; extreme anger may cause damage in liver; a melancholy person who worries a lot tends to have a poorer functioned lung and spleen.

A sudden change of emotion beyond the threshold and long term imbalanced emotion can lead to problems with the associated parts of our inner organs and cause illness (Huang Di Nei Jing, 475-221 BC, 206BC–220AD).

More interestingly, a link between music and health can also be found in TCM. Holistic approach is promoted and body (身) and mind (心) are inseparable. Importantly, when a Chinese mention 心 (heart), it actually refers to emotion.

Emotion is an invisible key and a double-sided sword that can affect one’s health both ways. Unsolved negative emotions may cause the imbalance of the physical body. It is well recognized in TCM that musical notes to be life-essences, which could bring harmony and revival in to one’s holistic being.

The book of 禮記 (Li Ji) 樂禮 (Yue Ji) stated that the sound of music could agitate and stir arteries and veins, which could increase or smooth the blood circulation.

The link between music and health is also shown in the pentatonic musical scale in traditional Chinese music. It is written the five notes in a pentatonic scale, corresponding with the five main emotions, also link with five main inner organs (see Table II).

TABLE II: FIVE ELEMENTS THEORY IN TCM

Chinese Notation	肝	心	脾	肺	肾
PinYin/ Pronunciation	Gong/Kung	Shang	Jue/Chueh	Zhi/Chih	Yu
Emotion	Worry	Sadness	Anger	Joy	Fear
Organ	Spleen	Lung	Liver	Heart	Kidney
Tone Characteristics	Firm & Encouraging	Heavy & Unbending	Bright & Renewing	Energetic & Emotional	Melancholy & Placid
Effects	Encourage tolerance	Encourage honesty & friendship	Encourage kindness	Encourage generosity	Encourage contentment
Applications	Indigestion, worry, melancholy	Sadness, grief	Liver issue, breast cancer	Negativity, passiveness, depression	Anxiety, Insomnia

For example, a person who is always in sad mood may develop weakened lungs. A male who easily gets angry may find problem with his liver; a female who is quick tempered often develops issues with her breasts. Yet, positive emotion can lead to well-balanced energy, which would increase the strength of your immune system. Also in rehabilitation processes, positive and balanced emotion could promote and speed up the recovery of the body. Based on the assessment of individual patient, TCM practitioner may recommend music that would be able to help to restore the patient to a more balanced, healthy state, while sounds or tones that might aggravate the individual's condition should be avoided during the healing process. Once the balance is restored, the TCM practitioner would advise on the use of music for maintaining health based on the individual's underlying constitution. For example, 《高》《喜相逢》 can be suggested to be listened to by people who are negative and passive; 《春江花月夜》, 《平湖秋月》, 《塞上曲》 may be prescribed to a worrier to balance his or her melancholic character and also have good effects for the issue of indigestion.

Despite of the healing effects of music and its application throughout history, pharmaceutical drugs have become the dominant method of achieving health. Until post-World War II, when musicians visited hospitals and brought music to soldiers suffering from emotional and physical trauma, the significance of music in health and well-being started to be accepted as a form of therapy [7]. Based on philosophy, psychological theories and neurosciences, Nordoff-Robbins school of music therapy and analytical music therapy are two main forms [8]. Music therapy is contemporarily defined as clinical and evidence based scientific use of music within a therapeutic rela-

tionship to positively impact physical, cognitive, emotional, mental, social, aesthetic and spiritual wellbeing, in order to improve or maintain quality of life [9]-[12].

Multi-disciplinary research into music has been carried out in past decades and scientific evidence of the effects of music is biologically, neurologically, physically, emotionally, psychologically and sociologically. One of the crucial evidence is music engagement changes brain activity [8]. Neurological study of music shows music is constantly influencing and shaping listener's brain function [13], [14] and the ability of music to stimulate complex cognitive, affective and sensor motor processes in the brain is fundamental and valuable in its therapeutic transformation for individual [14]. Dopamine, a type of neurotransmitter involving in pleasure [15]; cortisol, the hormone that involves in stress [16] and oxytocin that relates to social bonding [17] can all be adjusted by music. Neurologically, music was found engaging in a large variety of brain functions, including emotion, memory, attention, linguistics, motor control, pattern perception, imagery, learning and plasticity etc. [18]-[21] compared music to analgesic, a pain relief. Physical arousal was also shown associated with music listening, including increased heart rate, shallow breathing, skin temperature also increases and the pattern of brain waves changes [22]-[26]. Besides, emotional regulation function of music [27], music preference in relation to personality [28]-[32] and identity [33], [34] has been explored into with much excitement.

Although being necessity of survival, anxiety and pain are common battles for many people. The choices of taking pharmaceutical drugs or so called 'painkillers' cannot actually 'kill' the pain but to temporarily break the message. Besides, certain invasive medical procedure itself could also cause pain and anxiety. Positive effects of music in pain management and anxiety reduction indicated through research are beneficial in a large variety of settings. For example, dental practices [35], operational theatre [36], during waiting times [37], intra and post operation [38], cancer care [39]-[41] and rehabilitation period [42]-[44], music was found playing significant role in coping with anxiety and pain, which are sometimes caused by certain medical procedures [45]-[47].

The value of music in encouraging awareness, emotional expression, responsiveness, intra-personal and interpersonal communication, social interaction and positive associations [48], [49], music therapy is also used for learning disability [50] in nursing homes [51], [52], rehabilitation center and also psychiatric hospitals in both active and passive ways. The sensory and intellectual stimulation of music is particularly important in helping the elderly maintain a high quality of life [53]. Music therapy is suggested to raise sense of energy, motivate residents to have more active living, add variety to the elderly's daily life; also it causes distraction from suffering and self-confirmation, which leads to greater life satisfaction [53].

Although the positive effects of music intervention caught researchers' attention and have been in service in various healthcare settings, challenges in music application are in its individualism and cultural diversity aspects. Generally speaking, music with

soft, slow tempo is believed to be relaxing. Yet, the individualism in music's effects is important. What appears to be relaxing to one may be stressful to another. It was suggested individual taste of music should be taken into better account in order to tailor more suitable music for applying music therapy [54]. Music was demonstrated being provided frequently to dementia patients with verbal and vocal agitation among 20 Dutch nursing homes. Music preferences were suggested taken better account when offered individually rather than offered publicly to a group of resident. Application of music purposely targeting challenging behavior is pointed out to be important. It is suggested through research in music identity that one's preferred music can prolong endurance of pain [20], [21].

Secondly, with our societies becoming more and more culturally diverse and within most caring settings, no single culture is any more found alone, which has become another challenge in contemporary healthcare. It was suggested knowledge and appreciations of different cultural norms and values are important to achieve effective results in multi-cultural environments [55]. Trans-cultural knowledge is needed among health professions to improve quality of healthcare [56]. Music preferences for pain relief were described as the most frequent ways of music intervention. Results indicated musical choices related to cultural background. Caucasians most frequently chose orchestra music. African Americans chose jazz and Taiwanese chose harp music. It was suggested that in culturally congruent care, nurses should become aware of cultural differences in music preference and provide culturally specific selections among other music expected to have a therapeutic effect [57]. Philosophically, Western medicine, mostly seeing the body, mind and spirit as separate entities, believes phenomena must be observable or measurable to be accepted. While, Eastern approaches to wellbeing views the body, mind and spirit as an integral whole and health is considered to be the state of being holistically harmony. Knowledge is not limited in observable phenomena. Behind the manifested symptom, there is a hidden cause and it is important to be aware of the hidden cause and treat both to achieve the harmony [58].

Abundance of research evidences and escalating cost of healthcare in the West, health concept and approaches from the East is blossom worldwide in recent years [56]. Oriental treatments such as acupuncture, acupressure, massage and herbal remedies are considered great complementary to Western medicine beliefs and practices. Healing process of body and mind are considered crucial working in parallel to each other. For example, in acupuncture treatment, having music playing along is believed to enhance the treatment effectiveness as a combination of interactive ways of achieving proactive treatment. A study among 60 children with cerebral palsy was conducted in order to observe clinical therapeutic effects of acupuncture combined with music therapy [59]. They were divided randomly into two groups, one group undertaking acupuncture treatment and the other group undertaking acupuncture and music therapy. Through observation and comparison, both groups showed improvement in comprehensive and movement functions, yet the total effective rate in acupuncture and music group was significantly better, whose improvement of creeping and kneeling, stand-

ing and walking. Results suggested the company of music therapy could enhance treatment effectiveness [59].

2 Aims

Healing effects of music are both physical and emotional. In order to investigate the value of self-chosen music in cross-cultural contexts and promote the application of music in healthcare, a multi-disciplinary study was performed on the platform of Chinese acupuncture clinic in Scotland. 15 Scottish and 15 Chinese under acupuncture treatments for back pain took part in the study and results show self-chosen music can enhance efficacy of treatment in easing physical and emotional pain, releasing anxiety and stress. Further exploration of chosen music and relationship with listener may contribute towards more effective application of music to promote health and wellbeing in multi-cultural contexts.

3 Methods

PARTICIPANTS

Advertised with posters and leaflets in and around Traditional Chinese Medicine Clinic, information on the study was introduced and background of the interested clients was obtained. After consultation TCM practitioners on individual suitability (excluding ones with mental instability, severe hearing loss), a total of 24 clients undertaking acupuncture treatment for back pain were enrolled in this study (12 with Scottish cultural background and 12 with Chinese cultural background), including 14 females and 10 males, age ranging from 29 to 65 (mean = 40.5).

MATERIALS AND PROCEDURE

In order to take general music experiences and quality of life into account, Music Experience Questionnaire (MEQ) Brief and World Health Organization Quality Of Life (WHOQOL) Brief questionnaire were used. Through which, 6 aspects of music experiences (commitment to music, musical aptitude, social uplift, affective reactions, positive psychotropic effects and reactive musical behavior) [60] and 4 domains of quality of life (physical health, psychological health, social relationships and environment) were examined into cross culturally.

To assist us to make comparison between acupuncture treatment effects with and without self-chosen music, a pre- and post-session questionnaire was designed. Level of physical pain, emotional pain, stress, relaxation and energy was self-rated on 0 (Not At All) – 10 (Unimaginable) scale. A written feedback and post-study interview were conducted on voluntary basis.

The relevant questionnaire was given before and after the acupuncture treatment in both Condition A (treatment without music) and Condition B (treatment with music).

The whole procedure was taking place in a relaxed and confidential consultation room within the health clinic. The participants were given sufficient time to rest after the treatment and not obliged to answer all the questions. During the questionnaire, he/she can take breaks or have any reasons to leave at any time. The practitioners, doctors and health careers were working in a different room but within reachable distance.

4 Results

Results indicate music intervention enhances treatment effects. Comparing treatment conditions with and without music intervention, in both Chinese and Scottish groups, reduction of physical, emotional pain and stress was shown significant higher after acupuncture treatment with preferred music playing along. Acupuncture treatment does not necessarily gain participants energy, yet it is showing the anti-stress effects (Figure 1&2).

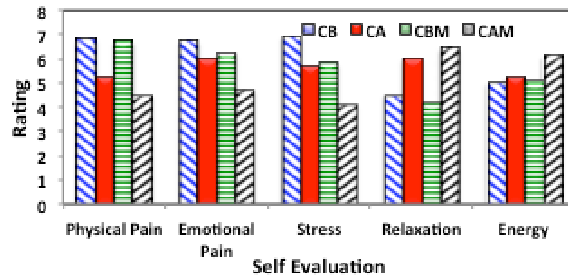


Fig. 1. Chinese Group.

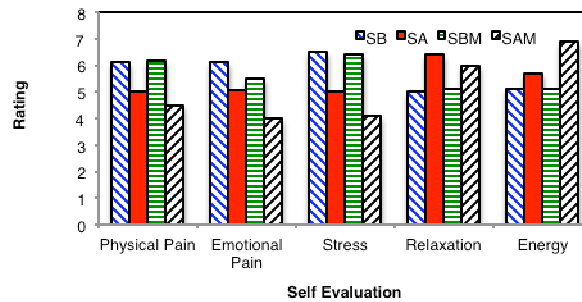


Fig. 2. Scottish Group.

Comparing treatments effects upon two groups of participants, even though music assisted acupuncture treatments have reduced stress level for both groups, Chinese group were found more relaxed than Scottish group and Scottish participants were

showing more energy gaining than Chinese participants after the treatments with music intervention. This may be due to the differences in the choices of music or familiarity to the acupuncture treatment itself.

Post-Interview data on individual listening experiences during acupuncture treatment highlighted the enjoyment of one's own music created a more 'pleasant', 'relaxing' and 'familiar' treatment environment. It eased the possible tension, which might be caused by acupuncture itself by 'attending to favored music rather than practitioner or the treatment'.

The emotional attachment to music has shown healing effects upon some individuals emotionally as well as physically. Chinese participant A stated, 'I think my work has been giving stress and I found myself in terrible back pain very often. The music I chose happen to be also my father's favorite and we use to enjoy listening to them together. Somehow, listening to these old songs made me feel my father's presence and chased my stress and pain away. I am surprised how much better I feel! I feel being supported and encouraged and I think I should listen to it more often.' Scottish participant B said, 'It makes me feel young again ... listening to those songs. I have been suffering from a previous injury and it still gives me sore back. I tried many ways and acupuncture seems to help. Music gives you energy I think, also makes you happy. Maybe when you are feeling low and sad, the pain feels worse.'

Besides, cross-cultural music preferences occurred among the participants. 3 Scottish participants brought with them oriental music to play along. Apart from 'it is different from what I hear everyday on TV and market,' one also explained, 'I quite like some traditional oriental music when I get stressed out. Perhaps because of the slightly different tune or its soothing melody, I think it makes me feel calm and more relaxed.' 'How do I describe ... it is kind of indirect and more gentle way of expression comparing with Western music ... that I like. I feel I am understood better.' 'It kind of gives me an enlighten.' On the other hand, 5 Chinese participants chose Western popular music to listen to during the treatment. 'I like the lyrics in the songs. It's like speaking to me in that way ... Even sometimes, it gives me some counseling over stressful and unexpected situations.' It appears music choices go beyond culture and language boundaries.

5 Discussion

Applications of music to promote physical and mental health have been documented since the ancient time. It has been interesting to researchers that despite of the similarities and differences in music across culture, benefits of music upon health and wellbeing are inevitable. The advantages of applying music in health and caring professions have been known in the East as well as in the West [61], [62]. So far there have been a large body of researches on the effects of music in healthcare scenarios

and music intervention is making its own special contribution in many challenging fields, such as pain management, cancer research, depression, autism development and dementia care [63]-[66]. Neurologist Oliver Sacks stated in his book *Awaking*, “The power of music to integrate and cure is quite fundamental. It (music) is the profoundest non-chemical medication” [67].

Music listening primarily evokes positive emotions in listeners [68] and also has many positive influences to listeners, for example to relax, to evoke memories, to express emotions, to assist communication, to create identity and regulate emotions [27], [69]-[71]. Music is valuable in healing and maintaining health and wellbeing. Comparing to pharmacological methods, which may result in dependence and impairment in psychomotor and cognitive function [72], music intervention is non-invasive and non-judgmental, advancing in its cost effectiveness, also causes little side effect and easy to administrate. In contemporary healthcare, physical health is often prioritized over emotional, psychological needs. Yet, both ancient beliefs and recent scientific research indicated psychological and emotional wellbeing play significant role in one’s physical health. Longitudinal study [73] suggested mental health was the best predictor of physical health. In hospital, where it can easily lack of emotional and psychological care, music can be used as a magic tool to create an environment that stimulates and maintains relaxation, brings comforts and positive distraction from discomforts and suffering.

Thus, music and medicine works best in partnership [74] and functions in compromising to each other. The combination of ancient wisdom and modern technology is suggested. In 1978, the World Health Organization recommended traditional healing integrated with modern technologies. The combination of Eastern and Western perspectives offers healthcare professionals refreshing understanding of health, also provided the richness of more integrated approaches and culturally congruent health care services [56]. However, it is highlighted here, in music intervention, cultural elements cannot be neglected. We would not be able to examine the effects of music without considering his or her cultural background in health and caring scenarios.

There are some similarities and differences in Traditional Chinese music and Scottish folk music. Pentatonic scale is common in both and melancholy is one of the common characteristics of traditional songs in both cultures. Through the quantitative and qualitative data analysis in this study, it indicated choices of music are not limited by culture nor language differences. There seems to be a common understand of human experiences and music speaks to individual in the universal language of emotion. It was proposed that whether a therapeutic intervention ‘works’ lies in its ‘efficacy’, i.e. ‘the power to produce effects’ [75]. In TCM theory, blocked emotion causes blockage in ‘Qi’ flow and hinders energy flow. As for its emotional influences, relaxation and distraction factors, the company of music along acupuncture treatment have been a tradition in TCM. It is believed that music serves an important purpose during the treatment to assist healing.

In some way, scientific research seeks for generalization and building rules and principles based on tangible evidences. However, it is proposed here that the asset of music therapy lies in its individualism. The relationship and responses to music is unique to everyone. It is the relationship individual can find in music that makes music therapy special. Scientific research on music can draw some rough principles, but it would not be possible to build solid rules regarding prescription of music.

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