

The establishment and development of music health studies

Fang Liu (Zhuoyi Liu)¹, Qi Xiao², Huaijie Zhu³

¹Henan Zhuoyi Culture Communication Co., Ltd.186-3978-8010, Zhengzhou City, Henan, China;

1650451367@qq.com ;

²China Musicians' Association, Zhejiang Province Musicians Association, China。

First-level composer

³Department of Pathology and Cell Biology, Columbia University, New York, USA. Jacksun Easy Biotech Inc.

New York, USA; Corresponding by Huaijie Zhu, 917-635-2608, jacksun689@gmail.com

Abstract: Music emerged with the advent of humanity and is a unique cultural phenomenon that has accompanied human life. Its key characteristic is that music transcends the constraints of language in human communication. While it's impossible to pinpoint the origins of music, even before humans developed language, they already knew how to express their thoughts and emotions through the pitch and volume of sounds. Throughout human evolution, illness was considered a form of demonic influence, and treatment was achieved through witchcraft. The advent of music led to the discovery that certain psychological disorders could be alleviated or cured by listening to music, sparking the early application of music in disease treatment. With the development of human civilization and the evolution of several centuries, people have gradually realized that music can be one of the important measures to treat certain diseases. Especially between the First and Second World Wars, due to the increase in the number of wounded due to wars and the lack of doctors and medicine, music not only comforted the wounded, but also promoted the healing of wounds, which made people have a particularly groundbreaking understanding of the relationship between music and the disease. The development of modern medical research and the increase in intractable diseases have increased the opportunities for research on the use of music for intractable diseases. With the development of human civilization and the evolution of several centuries, people have gradually realized that music can be one of the important measures to treat certain diseases. Especially between the First and Second World Wars, due to the increase in the number of wounded due to wars and the lack of doctors and medicine, music not only comforted the wounded, but also promoted the healing of wounds, which made people have a particularly groundbreaking understanding of the relationship between music and disease. The development of modern medical research and the increase in intractable diseases have increased the opportunities for research on the use of music for intractable diseases.

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1. Introduction

There is no clear record of when humans regarded music as a means of understanding that could influence people's health, spirit and emotions. As early as ancient times, people had already recognized that music was helpful in the treatment and repair of certain diseases. For instance, in the Old Testament of the Bible, there is a record of King Saul summoning David to play the harp to drive out demons (when he was emotionally and mentally restless). Pythagoras has already talked about the "purifying" effect of music, which is beneficial to human health and helps restore the harmony of inner abilities. Ancient Chinese classics also frequently mentioned the role of music in the spirit. The Spring and Autumn Annals once recorded cases where music was used to treat people's diseases. The Music Record also stated, "When music is practiced, the mind is clear, the ears are sharp, the

eyes are clear, and the blood and qi are peaceful..." Descriptions of the use of music for disease treatment. In the Middle Ages, Catholic temples used hymns to treat diseases. And the Arab Ziriab (?) It is also believed that Uud's four strings are related to people's four psychological temperaments, and another string was added as the "string of the soul". The first systematic book in the West to introduce the effects of music therapy was "Music Medicine" written by R. Brown in the UK. The Austrian doctor P. Lichtental (1780-1853) wrote a four-volume work titled "The Music Doctor" in 1807, providing a more detailed account of the exploration achievements of that time. Since then, research in this area has gradually increased. The authors of this study have demonstrated through a review of the history and practice of music from its origin, development, and its occasional

application in mental disorders to its tentative use in incurable diseases that music can achieve special therapeutic effects on various diseases by regulating changes in nerves, neurotransmitters, and hormones within the body, and ultimately by regulating the immune system within the body. Based on the fact that music can regulate and change hormones and immunity in the human body, it indicates that the potential functions of music can be applied to disease prevention, health protection and the treatment of various difficult diseases. Therefore, it is suggested that the research and application related to music and diseases be established as "Music and Health Studies". In the course of social development, there are possible opportunities to organize relevant music and medical experts to establish regulations and laws related to "music and health studies", and to cultivate transferred personnel who can use music for disease treatment, such as music therapists, etc. Music can be used to protect human health and treat diseases. Therefore, this article focuses on elaborating the "establishment and development of music health studies".

2. Origin of Music:

It is impossible to trace when music began to exist in human society. Even before humans developed language, they already knew how to use the pitch, strength and other factors of sounds to express their meanings and emotions. With the development of human labor, the chants that unified the rhythm of labor and the shouts that conveyed information among each other gradually emerged, which was the most primitive prototype of music. When people celebrated their harvest and shared the fruits of their labor, they often struck stone and wooden tools to express their joy and happiness. This was the rudimentary form of primitive Musical Instruments.

3. The Generation of Music:

Music is a product of physical expression, referring to the different vocalizations made by animals when they experience emotions due to neural excitement and pain. It is the physiological basis for the generation of music. According to the intensity, intensity and weakness of people's excitement, happiness, joy and sadness, there will be different degrees of vocalization, screaming and moaning. And this kind of sound established in human life gives rise to people using natural objects such as bamboo tubes and wooden barrels to create and prepare by hand, which can express and demonstrate similar vocalization to people in different emotional states. Through continuous evolution and improvement, it has evolved into "music". That is, every sound change, as a physiological result of pain or pleasure, has been brought to the ultimate exquisite music in vocal music today.

4. What is music?

In the early days, in a broad sense, music was an art form composed of sounds. The English word "Music" originated from the ancient Greek word "muse", meaning the art of goddesses. The Chinese word "music" is interpreted as "sound" or "sound", born from the heart. It is believed that the difference between music and sound lies in that humans, through the imagination and creation of the mind, combine the sounds of the mind under different mental conditions to form music. In modern times, it is believed that music is "a form of expression of artistic and cultural activities, with its medium being regularly organized and regulated sound waves." Music, composed of basic elements such as melody, rhythm and sound, is a form of expression that can convey emotions, reflect reality, and promote cultural exchange and social harmony. The definition and experience of music vary from culture to culture and from individual to individual, but its core lies in expressing and feeling emotions through sound, which is a special spiritual nourishment for human beings.

5. What are the components, forms of existence and functions of music? Music can be understood as an organized sound composed of elements such as rhythm, melody and harmony. Music is created. The existence and expression forms of the three processes of playing and listening are popular in human life. Her strong vitality is manifested in her unique functions. Music is a special form of emotional expression. It is an important way for humans to express their emotions and can convey various feelings such as joy, sadness and anger. 2) As a cultural carrier of human civilization, music is an important component of different cultures, carrying the transmission and promotion of history, traditions and values. 3) Music serves as a medium for expressing subjective experiences in human existence. The expression, appreciation and perception of music are highly subjective. Different people may have different understandings, expressions and experiences of the same piece of music. 4) It is the embodiment of human beings' yearning and pursuit for a real and multi-form life. Music can exist in various forms, including vocal music (songs), instrumental music (instrument performances), and a combination of the two to truly present a beautiful life. 5) It is a special language for human communication that is not restricted by language. Music can transcend the barriers of language and cultural environments. Become a bridge for communication and understanding between people without language barriers.

6. The History and Changes of Music and Disease Development:

6.1. The Origin and Evolution of Music and Health in Early Civilizations;

Historians believe that the earliest civilizations, that is, larger groups living in more or less permanently defined regions and settlements and adhering to common customs and belief systems, emerged 5,000 to 6,000 years ago, within today's Iraq. The development of science and technology and medicine, the development of writing, that is, language and numerical communication, as well as the first evidence of the discovery of musical symbols around 2500 BC, all indicate the existence of music in early ancient cultures.

One of the most famous records of the Hebrews using music to treat physical and mental illnesses is from the Book of Samuel in the Old Testament of the Bible. When King Saul (around 1100 BC) felt unwell, it was believed that an evil spirit sent by God had come to his side, causing him to fall ill and feel uncomfortable. At this time, by chance, King Saul happened to hear the sound of David, a warrior of Saul's army, playing a harp. The music of the harp gradually relieved King Saul's discomfort. Over time, the conclusion was that "whenever an evil spirit from God came to King Saul's side and made him ill and uncomfortable, David would play the harp, and King Saul would feel relieved and recover from his illness. It is believed that the sound of the harp drives away evil spirits. This form of "harp therapy" is a typical musical treatment for disease events, It reflects an example of the consensus at that time that music could influence a positive mental state.

6.2. Documentary Changes in Music and Health Development during the Middle Ages and the Renaissance;

During the Middle Ages (500-1450 AD), Greek theory still dominated medical practice and, as a result, the medical perspective on music. The four humoral theories of black bile, yellow bile, phlegm and blood, which were initially proposed by Hippocratic, still dominate medical thought to this day. Diseases are believed to be caused by the imbalance among these four elements.

Boethius (c. 480-524), a Roman Christian philosopher, presented his interpretation of medieval music in his work "Institutione Musica", which dominated Western music theory for nearly 1,000 years. He divides the study and practice of music into three levels. He referred to the highest level as cosmic music (*Musica Mundana*), referring to the concept of celestial proportions in ancient philosophy, namely the physical proportions of musical acoustics. He believes that music is mainly a mathematical concept of harmonious proportions and numbers. The second level is called "human music", which refers to music that reflects the harmony of the human body and the spirit. The lowest level is instrumental music, which

actually refers to music that cannot be heard, performed by singers and instrumentalists. However, they are excluded from a true understanding of music science, and for scholars exploring the other two levels, their status is servile (Chadwick, 1981). In the context of human music, Boethius also mentioned the therapeutic power of music, although it is mainly related to morality and character. "Music is a part of our life; it either elevates our conduct or corrupts it" (Schrade, 1947, p. 188).

The theory of the healing power of music did not see new development until the 17th and 18th centuries. During this period, a large number of writers emerged, who clearly expounded the theories and treatment methods of music and medicine. For instance, Kishel (1684), Kranin (1689), Baglevy (1696), Brendel (1706), Etmiller (1714), Albrecht (1734), Nikolai (1745), Broxby (1749), and Roger (1758) (Schwabe, 1974).

7. The Development and evolution of music as a treatment for human diseases;

7.1. The early history of music as a therapeutic concept;

The concept of music as therapy is based on the ancient cross-cultural belief that music can have a "therapeutic" effect on both the body and mind. The historical explanations of the mechanism of music therapy almost always emphasize the causal relationships based on culture and social sciences in the explanations and applications of education, emotional motivation, catharsis or spirit, as well as religious models. However, it is equally important and worth noting that the view of music as "therapy" is not only influenced by the role of music in a specific social culture, but is always strongly influenced by culture, as well as the concepts and understandings of diseases and their causes. The concept of magical/mysterious diseases and "rational" medicine may have coexisted for thousands of years (Davis, 2008). It was not until the end of the 19th century and the beginning of the 20th century that the scientific basis of medical and psychological behaviors for treating human diseases was established and applied, which enabled the development of the foundation of music in therapy over the past 100-plus years, from no science to soft science. Up to the recent practical application of brain science (Gaston and Gaston, 1968; Thaut, 2005). Egyptian medicine had a significant influence on early Greek medicine, thanks to its advanced knowledge (Finger, 2000). However, Hippocrates, the Greek doctor of the 5th century BC and the "father of modern medicine", is generally regarded as having shifted medicine from the concept of God to the utilization of nature, especially the observation of the body, in order to achieve the development of medical knowledge. The ancient

Greeks still believed that disease was the punishment of the gods and cure was the gift of the deities. However, with the development of modern medicine, the new "rational medicine" gradually replaced the experience and methods of early music therapy, and also slowly replaced these ancient medical concepts. The development of medical science also reveals that music has a magical therapeutic effect on certain diseases. It does not achieve this by driving away deities, but by evoking the restoration of psychological adjustment imbalances caused by mental consciousness through music, thereby realizing the treatment of diseases.

7.2. The modern development history of music as a treatment for human diseases;

In 1890, the Austrian doctor Lichtendahl put forward the concept of "music doctor", and the therapeutic effect of music officially drew people's attention.

Systematic theoretical research on the value of music therapy for clinical diseases began after the 20th century. The invention of the phonograph has made it possible for people to conveniently apply recorded music in clinical practice for disease treatment. During World War I, music therapy was used to help soldiers with limb injuries restore the function of their muscles and joints. During World War II, in a field hospital in the United States, due to the extremely harsh living and environmental conditions at that time, the mood of the wounded soldiers was very bad, and the infection rate and mortality rate after surgery were both very high. At that time, some doctors used phonographs to play music to soothe the patients' emotions. The emotions of many soldiers were quickly stabilized. Surprisingly, the infection rate and mortality rate of patients after the operation have been greatly reduced. This discovery was taken seriously by the US Department of Defense and promoted in various field hospitals, achieving excellent results. After the station, many hospitals began to invite musicians to participate in the treatment work, and some doctors started to systematically study the role of music in health.

In 1944 and 1946, specialized music therapy courses were successively established at Michigan State University and the University of Kansas in the United States to train professional music therapists. In 1950, the United States was the first to establish the Music Therapy Association (NAMT), marking the birth of music therapy as a new discipline.

Music therapy was once popular in Europe in the middle of the 19th century, but its large-scale application began during World War II, initially for the treatment of mental illnesses among the sick and wounded. Due to its certain effectiveness, it was rapidly promoted. In 1950, the National Association of Music Therapy was established in the United States, dedicated to exploring and promoting music therapy,

and published a collection of papers and regular periodicals. Such organizations have also emerged one after another in Western countries, and there are international professional exchange activities.

At present, in addition to having a considerable number of specialized works in this field in Europe, America and Japan, many music colleges have collaborated with the medical community to establish music therapy programs with a four-year study period. After graduation, students work as professional music therapists, collaborating with regular doctors to combine music therapy with drug treatment in order to achieve better therapeutic effects for patients. The Salzburg Conservatory of Music in Austria has also established the Institute of Experimental Music Physiology to conduct fundamental research on music therapy. In recent years in China, music therapy has gradually recovered. For instance, qigong therapy accompanied by guqin music falls into this category. Some doctors in mental hospitals are also beginning to use music as an auxiliary treatment method.

8. An overview of the Development of music therapy for Diseases in China:

In 1980, Professor Liu Bangrui, an expert in music therapy from Arizona State University in the United States, gave lectures at the Central Conservatory of Music and introduced music therapy to China for the first time. Since then, music therapy has spread in China and gradually grown up. Since then, some medical institutions have experimentally adopted music therapy methods for some psychological disorders. For instance, Beijing Huilongguan Hospital had already applied music therapy in clinical practice in the 1980s. Shanghai Mental Health Center has also been constantly exploring music therapy for mental patients and has achieved gratifying results.

In 1988, the China Conservatory of Music established the music Therapy major, and since then, China has officially begun to cultivate professional talents in the field of music therapy. In 1989, the Chinese Music Therapy Society, affiliated with the Chinese Musicians' Association, was established in China. It is a mass academic organization dedicated to the research of music therapy. Since then, many experts in musicology, psychology and medicine have voluntarily participated in the academic research of music therapy. The society has become a bond connecting domestic music therapy workers, promoting the development of the music therapy cause. In the 1990s, a group of music therapy experts who had studied in the United States returned to China to teach, bringing back many advanced music therapy methods from abroad to China and gradually narrowing the gap between China and the world in the

development of music therapy. Music therapy in China, like that in Western countries, is still a developing discipline. Chinese music and medical scientists are both striving to promote the application of theories and specific measures related to music and health in disease treatment.

9. Physiological regulatory principles and specific processes of music therapy for diseases: Music therapy for diseases, as a practice-oriented discipline, although it has a relatively long history in the treatment of diseases with music, due to certain limitations of social development in various countries around the world, the research on its mechanism is still relatively weak. However, it has also made certain progress. Based on the research of various countries around the world, the progress of the mechanism and principle of music therapy can be summarized as follows:

9.1. The role of hormone secretion regulation: Music achieves the treatment of certain diseases through neural and hormonal regulation: Different musical sounds can activate multiple regions of the cerebral cortex and promote the remodeling of gray matter structure. The gray matter area of the auditory cortex of music practitioners is 15% larger than that of ordinary people. Changes in the cortex regulate human health by influencing hormone secretion.

9.2. Enhancing the regulatory effect on immune function: Research has shown that individuals who frequently listen to music, with the continuation of long-term music listening time, have their immunoglobulin A levels increase by up to 20%, and the activity of NK cells is enhanced, promoting disease recovery.

9.3. Regulatory Effect on Emotional Stability: Music can directly act on the human brain's emotional control centers such as the hypothalamus and limbic system, and can bidirectionally regulate human emotions. Cheerful music boosts dopamine secretion by 9%, while sad music helps release emotions through emotional resonance. After receiving music therapy, the emotional improvement rate of patients with depression reached 65%. The hypothalamus, limbic system and reticular structure of the brainstem, which are the centers of emotional activity, are closely related to the autonomic nervous system and are also the controllers of the activities of internal organs and endocrine glands in the human body. Therefore, the tense state of emotions can directly lead to the lesions of certain internal organs and cause "psychosomatic diseases". Music can regulate people's emotions, and thus can help treat certain psychosomatic diseases. Stress relief: 45 minutes of soothing music can reduce anxiety scale scores by 40%, especially when natural sound effects are combined with light music, the effect is even better.

9.4. Impact and Improvement of Mental health; Music affects and enhances mental health by stimulating the release of certain neurotransmitters in the brain, such as acetylcholine and norepinephrine, thereby improving the function of the cerebral cortex and regulating the secretion of cortisol, endorphins and other levels. Soothing music below 60 decibels can reduce stress hormones by 23%.

9.5. Education in Auxiliary Psychology: Research shows that music can influence personality, and emotional cultivation is crucial for personality growth. Since music encompasses all aspects of human emotions, it can effectively shape personality. Music can transcend consciousness and directly act on the subconscious, thus having a special effect in psychotherapy. Music activities are relatively orderly behaviors that help coordinate the body and mind and build harmonious interpersonal relationships, and thus are widely used in behavioral therapy.

9.6. Treating Pain: The auditory center and the pain center of the brain are both located in the temporal lobe of the brain. Music stimulating the auditory center has an interactive inhibitory effect on pain. At the same time, music can also increase the concentration of endorphins in the pituitary gland, and endorphins can inhibit pain. Therefore, music has an analgesic effect.

9.7. Improve sleep quality: Listening to 45 minutes of alpha wave music before going to bed can shorten the time to fall asleep by 37% and increase the duration of deep sleep by 25%.

9.8. Music can improve brain function, coordinate the left and right hemispheres of the brain, and thereby promote human intellectual development. Therefore, it is often applied to the early intellectual development of children. Music can improve the abilities of children with intellectual disabilities, so it is widely used in special education.

9.9. Improved sleep quality: Listening to alpha wave music for 45 minutes before going to bed can shorten the time to fall asleep by 37% and increase the duration of deep sleep by 25%, with clinical applications in medical scenarios.

9.10. Innovation in Neurorehabilitation: Rhythmic synchronous music training designed for patients with Parkinson's disease can improve gait coordination by up to 40%. The cognitive function of patients with early-stage Alzheimer's disease is enhanced by 15% through music stimulation.

9.11. Music therapy methods and specific forms: They can be classified into receptive, improvisational and re-creative music therapy. Among them, the methods of receptive music therapy include many approaches such as listening and song discussion. Re-creative

music therapy encompasses songwriting, music composition, musical psychodrama, and so on.

Music therapy encompasses methods such as instrumental improvisation and oral improvisation. It employs music-related means, including listening, singing, playing, creating, and moving techniques, to help the treated individuals achieve health.

10. The development history of music and disease laid the foundation for the establishment and development of "music Health Studies" :

A comprehensive review of the development history of music and health and the disciplinary goals of contemporary music therapy both at home and abroad. The authors of this study have demonstrated through a review of the history and practice of music from its origin, development, and its occasional application in mental disorders to its tentative use in incurable diseases that music can achieve special therapeutic effects on various diseases by regulating changes in nerves, neurotransmitters, and hormones within the body, and ultimately by regulating the immune system within the body. Based on the fact that music can regulate and change hormones and immunity in the human body, it indicates that the potential functions of music can be applied to disease prevention, health protection and the treatment of various difficult diseases. Therefore, it is suggested that the research and application related to music and diseases be established as "Music and Health Studies". In the course of social development, there are possible opportunities to organize relevant music and medical experts to establish regulations and laws related to "music and health studies", and to cultivate transferred personnel who can use music for disease treatment, such as music therapists, etc. Music can be used to protect human health and treat diseases. Therefore, this article focuses on elaborating the "establishment and development of music health studies".

In terms of application fields, operational methods and development trends, the discipline of music therapy has far exceeded its earlier stage. The application of music, which was only highlighted in the field of applied psychology, has now expanded to all areas of music and health. That is to say, music therapy is not merely a branch of psychotherapy as most people think, Instead, it involves an independent discipline with a broader scope, namely music and health studies.

The development history of music for diseases and the relationship between modern music and health have already laid a solid foundation for a promising future for music and health. One of the key reasons is that in the research and development of modern medicine, the occurrence, development, symptoms and the harm to life of many diseases have been studied very clearly.

However, the current situation where the development of human disease therapy lags behind that of diagnosis has given music therapy the opportunity to be used for the tentative treatment of some incurable diseases. The results of the treatment attempts far exceeded the traditional understanding that music therapy is only used for treating mental disorders. Instead, through the attempts of music on certain difficult-to-treat diseases, it was discovered that music can regulate the changes in the body's nervous system, thereby promoting the secretion of neurotransmitters and hormones within the body. By improving and regulating the body's immune system, it can achieve the treatment of various diseases. In particular, many difficult-to-treat diseases have been cured or their symptoms have improved.

The research on the tentative application of music in incurable diseases has proved that music can regulate the changes in neurotransmitters and hormones. It can be inferred that music can prevent and treat human diseases and even achieve health and longevity. Therefore, it is necessary to establish "Music Health Studies" as a new disciplinary field. And under the establishment of this new discipline of "Music Health Studies", a corresponding music health studies association should be set up to organize and call for the combination of music and medical experts. Under the academic banner of the "Music Health Studies" discipline, based on the relevant research data, corresponding legal provisions for "music Health Studies" should be formulated, and corresponding colleges should be established. Cultivate "music therapists" and "music health therapists", and promote "music health studies". The development in the cause of human health is more conducive to the treatment, prevention and longevity of music-related diseases.

11. Conclusion: As mentioned above, in the current development of medical science, where therapeutics is at a loss as to how to treat many intractable diseases, the application of music health science will make the treatment of many intractable diseases possible. With the rapid development of artificial intelligence, it is more conducive to helping to screen out more effective music combinations for different types of diseases, which will greatly increase the cure rate of various diseases. The era of human health and longevity is surely just around the corner.

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