Music therapy for improving mental health problems of offenders in correctional settings

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MUSIC THERAPY FOR IMPROVING MENTAL HEALTH PROBLEMS OF OFFENDERS IN CORRECTIONAL SETTINGS

BY
XI JING CHEN

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AALBORG UNIVERSITET

MUSIC THERAPY FOR IMPROVING MENTAL HEALTH PROBLEMS OF OFFENDERS IN CORRECTIONAL SETTINGS

by

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AALBORG UNIVERSITY
DENMARK

Dissertation submitted for the Degree of Doctor of Philosophy

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CV

Xi Jing Chen was born in 1979 in Changsha, China. She obtained a bachelor's degree in musical composition in 2002. Intrigued by the influence of music on people's body, mind, and psyche, she moved to Beijing to study music therapy at the Central Conservatory of Music, and she received a master's degree in music therapy in 2006. As a researcher, Xi Jing Chen has collaborated in several studies investigating the effects of music therapy on offenders, people with mental disabilities, and children with special needs in China. She has published three articles in Chinese and international professional journals; she has also contributed to several international conferences in Norway, America, Austria, and China. Besides research, she enjoys cooking delicious food.

DECLARATION

I hereby declare that neither this thesis nor part of the thesis have previously been submitted for a higher degree to any other University or Institution in Denmark or abroad.

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Xi Jing Chen Date

ENGLISH SUMMARY

Music therapy as one kind of rehabilitation interventions has been applied for offenders for decades. This research aimed to investigate the effects of music therapy on enhancing mental health for offenders in correctional settings. Two studies, a randomized controlled trial (RCT) and a systematic review and meta-analysis, were conducted.

This article based thesis presented two studies with five publishable articles which respectively presented the RCT's study protocol, intervention process, and results, and the protocol, process, and results of the systematic review. Then, the linkage chapters of the thesis introduced the researcher's integral thoughts, connected the five articles, and integrated the two studies as a whole research project.

First, the RCT was implemented to investigate the effects of group music therapy on improving anxiety, depression, and self-esteem in offenders in prison. Two hundred Chinese male adult prisoners were randomly assigned to music therapy (n = 100) or standard care (n = 100). Participants assigned to the music therapy condition had 20 sessions of group therapy for 10 weeks compared to standard care. Standardized scales measured anxiety, depression, and self-esteem at three time points. Data were analyzed based on the intention to treat principle. Compared to standard care, anxiety and depression in music therapy decreased significantly at mid-test and post-test; Self-esteem improved significantly at mid-test and post-test. Younger participants decreased more in anxiety at mid-test. Participants with lower education had a greater improvement in anxiety and self-esteem at post-test.

Second, the systematic review and meta-analysis examined the effects of music therapy on improving mental health for offenders in correctional settings. Exhaustive searches were conducted to identify RCTs and quasi-randomized

controlled trials (controlled clinical trials, CCTs) of music therapy for offenders in correctional settings. Five studies (N = 409) were included for fixed-effects meta-analyses including the aforementioned RCT. The results showed that music therapy was effective for promoting offenders' self-esteem, anxiety, depression, and social functioning. Effects of music therapy increased with the number of sessions. No significant effect was found in the comparison of different music therapy approaches.

Overall, this research demonstrated the effects of music therapy on decreasing anxiety, depression, and improving self-esteem, social functioning for offenders in correctional settings. Music therapy seemed to be helpful for offenders to improve their mental health. In addition, it can be highly beneficial for prisoners of young age or low education. Music therapy has potential to combine the strengths of diverse offender rehabilitation theories to benefit offenders and public safety. Future studies should consider offenders of genders, larger sample size, multiple sites cooperation, dose effects, and long term effects.

DANSK RESUME

Musikterapi som interventionstype er blevet brugt til rehabilitering af lovovertrædere gennem årtier. Formålet med nærværende afhandling er at undersøge den effekt, som musikterapi kan have i forhold til forbedring af mental sundhed anvendt på fængselsindsatte lovovertrædere i Kina. I den forbindelse er udført to undersøgelser: Et randomiseret, kontrolleret forsøg (RCT) samt en systematisk gennemgang og metaanalyse.

Afhandlingen er artikelbaseret, og de to undersøgelser præsenteres i fem publicerbare artikler, der hhv. behandler: RCT-forsøgsprotokollen, indgriben processen og resultaterne, samt den systematiske gennemgang protokollen, processen og resultaterne. De fem artikler sammenkædes gennem kapitler, der såvel introducerer forskningens integrative hensigt som integrerer de to undersøgelser i et helhedsperspektiv.

RCT blev gennemført som det første trin. Her undersøgtes, om og hvordan gruppemusikterapi kan behandle angst, depression og højne selvværd hos kinesiske indsatte. 200 voksne, mandlige indsatte blev randomiseret inddelt i to grupper, hvor den første modtog 20 sessioners gruppemusikterapi (n = 100), mens kontrolgruppen modtog gældende standardbehandling (n = 100). Angst, depression og selvværd blev målt via standardiserede skalaer tre gange. Data blev analyseret ud fra ”intention to treat”-princippet. Såvel medio- som posttest demonstrerede et markant fald af symptomer på angst og depression samt højnelse af selvværd hos de fanger, der modtog gruppemusikterapi, sammenlignet med de fanger, der modtog standardbehandling. Symptomer på angst faldt mere for yngre deltagere ved mediotesten, og deltagere med lavere uddannelse viste større forbedring i forhold til angst og selvværd ved posttesten.

Andet trin udgjordes af en systematisk gennemgang og metaanalyse af, hvordan musikterapi kan forbedre den mentale sundhed for indsatte

lovovertrædere. Omfattende søgninger blev udført med henblik på at identificere randomiserede, kontrollerede forsøg og kvasi-randomiserede, kontrollerede forsøg med musikterapi med indsatte lovovertrædere. Ud over den ovennævnte RCT blev fem undersøgelser (N = 409) inkluderet med henblik på at udføre fixed effects-metaanalyser. Det blev fundet, at musikterapi har effekt i forhold til både fremme af indsattes selvværd og sociale kompetencer og til reduktion af angst og depression. Effekten af musikterapi varierer med antallet af sessioner. Der blev ikke fundet signifikante effektforskelle på anvendelse af forskellige musikterapi-tilgange.

Samlet demonstrerer nærværende undersøgelse, at musikterapi anvendt på fængselsindsatte lovovertrædere har effekt på reduktion af angst og depression samt fremme af selvværd og social funktion. Deltagelse i musikterapi kan således forbedre de fængselsindsattes mentale sundhed og viser sig ikke mindst gavnlig for yngre og lavtuddannede fanger. I den forstand viser musikterapi et potentiale i forhold til at styrke rehabilitering fængselsindsatte, der såvel er til gavn for de indsatte som for den offentlige sikkerhed. Fremtidige studier kan med fordel undersøge effekten af musikterapi med fængselsindsatte af begge køn, flere stikprøver, ”multiple site” samarbejde, dosiseffekt og langtidseffekt.

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I can still remember as it were yesterday that the late Professor Tony Wigram introduced me to the Aalborg music therapy PhD program and encouraged me to apply for it when we were walking around the wall of the Forbidden City. Four and a half years have passed, I have experienced many firsts during my PhD study: traveling abroad alone, taking courses in English, being encouraged to express my own opinions, publishing academic articles, presenting my study at international conferences, and meeting interesting people around the world. Many thanks to Professor Wigram. Without him I would not have had the opportunity to experience so many interesting and challenging things which enriched my life and made me a whole different person.

I would like to express my sincerest gratitude to my two supervisors, Christian Gold and Niels Hannibal. Each of them influenced me in a unique way. I am very grateful to Christian Gold, for his great support to my whole PhD journey, from my first draft of the study proposal, every version of the article, data analysis, to my final thesis. I want to express my thanks to him for the the long distance supervisions through countless emails, phone calls, Skype, as well as the intense and fun person-to-person supervisions. His rigorous attitude towards scholarship, rich experiences in quantitative research, rational and logical way of thinking, and confidence has profoundly impacted me. I am also very grateful to Niels Hannibal, for his unique insights and valuable suggestions to my articles and whole research, as well as for his patience, caring, and kind help to my life. With their great support and patient company, I have changed from an nervous, dependent, and obedient student to an independent, self-efficient, and confident novice researcher with my own critical thinking.

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TABLE OF ABBREVIATIONS

CCTs	Controlled clinical trials
CDSR	Cochrane Database of Systematic Reviews
E-H	Existential-Humanistic
GLM	Good lives model
RCT	Randomized controlled trial
RNR	Risk need responsivity

LIST OF ARTICLES

Article 1. Chen, X. J., Hannibal, N., Xu, K., & Gold, C. (2013). Group music therapy for prisoners: Protocol for a randomised controlled trial. *Nordic Journal of Music Therapy*, 1-18. doi: 10.1080/08098131.2013.854268

Article 2. Chen, X. J., Hannibal, N., & Gold, C. (2013). *Randomised trial of group music therapy with Chinese prisoners: Impact on anxiety, depression, and self-esteem*. Manuscript submitted for publication.

Article 3. Chen, X. J., & Hannibal, N. (2014). *Meet Hui in music: A case report of group music therapy for a Chinese male prisoner*. Manuscript submitted for publication.

Article 4. Chen, X.J., Leith, H., Aarø, L. E., Manger, T., & Gold, C. (2013). *Music therapy for improving mental health in offenders (Protocol for a Cochrane Review)*. Manuscript submitted for publication.

Article 5. Chen, X. J., Leith, H., Aarø, L. E., Manger, T., & Gold, C. (2014). *Music therapy for improving mental health problems of offenders in correctional settings: Systematic review and meta-analysis*. Manuscript submitted for publication.

SUMMARY OF ARTICLES

1. The first paper presented the study protocol for the RCT of group music therapy for Chinese prisoners. It described the objectives, study design, methodology, and statistical considerations of the study. This protocol played a vital role on controlling the study quality and ensuring the successful implementation of the research.

2. The second paper elaborated the RCT's process and results in terms of the participants' allocation, data collection and analysis, results, and discussion. Compared to standard care, music therapy group showed great improvement on anxiety, depression, and self-esteem. Music therapy was especially beneficial for younger participants and/or with lower education level.

3. The third paper is a case report, which illustrated the therapeutic process and progress of one participant during 20 sessions of group music therapy in the RCT. It also outlined the therapeutic concept and its close relationship to Yalom's group psychotherapy theory, gave information with regards to the setting, and put music therapy in a Chinese prison into the context of music therapy practice. By describing change process in the participant and the therapist's reflections, this article provided a window for readers to understand what happened during the intervention, and how the effects of music therapy may have manifested on the participants of the RCT.

4. The fourth paper is a systematic review protocol. It introduced the scope and purpose of the review, clarified the targeted offender populations and their problems, proposed a tentative conceptual model of music therapy for offenders; it also described the proposed review methods, such as selection criteria, search strategy, data extraction, and data synthesis strategies. This review protocol provided a structured and detailed plan for implementing the systematic review and meta-analysis.

5. The fifth article presented the results of the systematic review and meta-analysis of music therapy for offenders in correctional settings. This article systematically looked back into the application and research of music therapy with offenders, discussed the tentative conceptual model of music therapy for this population, and examined the eligible RCTs and CCTs for aggregating their effects. The results showed the effects of music therapy

for promoting offenders' self-esteem, anxiety, depression, and social functioning. The number of therapy sessions positively influenced the changes of the patients after music therapy. There was no significant difference between the effects of various music therapy approaches.

1. MY PATH TO THIS STUDY

As a music therapist, I started my work with male inmates in a high security prison in 2005. This prison contained over 600 male felons with severe offences such as manslaughter, rape, and robbery. Many of them were sentenced with an over ten years to lifelong imprisonment. Like other Chinese prisons, this prison implemented strict management to warrant its punitive and reformative function. The main part of inmates' daily life consisted of labor work and mandatory education, and the rest of the day was organized differently with either reading selected books, watching selected shows on television, sports, or just sitting in cell quietly. Every inmate's performance in these activities was scored and evaluated by prison guards for commutation.

Given the isolating and stressful environment in prison, it is not difficult to imagine its potential harm to the prisoner's mental health. Similar to other countries, many prisoners suffer mental health problems in China. However, the mental health care and treatments are far behind their needs. Take Beijing as an example, in this city with a population of 20 million there are only two forensic hospitals with a capacity of less than 100 beds for treating offenders with mental illness.

What can music therapy help for offenders' rehablitation? The results of my informal survey in this prison showed that the most common need for prisoners was to improve their mood. For prison officers, the primary goal was to decrease prisoners' resistance and rule-violating behavior, therefore to minimize the security risk. My clinical observation showed that the inmates' emotional improvement was asscociated with their better engagement in therapy, enhanced therapeutic alliance, and less destructive behavior. It seemed that alleviating negative emotions was imperative for prisoners' rehabilitation

and the whole prison management. Hence it became one of the important therapeutic goals in my practice with prisoners.

In 2006, I conducted my first study (Chen, 2010) to examine the effects of music therapy on anxiety, depression, and cognition for inmates in prison. Two hundred fifty six participants were randomly assigned to three groups (music listening and standard care, music listening with subliminal messages and standard care, and standard care with no intervention). The two experimental groups received two sessions of intervention and the control group received standard care. Self report scales (Self-Rating Anxiety Scale, Self-Rating Depression Scale, and self developed Cognitive Rating Scale) were utilized before and after the intervention. The results showed a significant effect of music listening on decreasing anxiety ($p < .05$). However, besides this result, the effects of music therapy methods that closely related to my clinical music therapy approaches were still unclear.

In clinical practice, I apply various music therapy methods flexibly to work with prisoner clients (here the client refers to the prisoner who receives music therapy) in a group setting, such as improvization, music listening and discussion, music imagery, and song writing. From my experience, at the early phase of therapy the clients usually prefer well structured musical activities (e.g., music listening and discussion, song writing etc) with clear instructions. After a safe and trustul atmosphere has been established, they may choose more free and creative musical activities (e.g., improvization, musical psychodrama etc). Each client also has his or her own preference to the music activities. So for meeting prisoner clients' needs in different therapy stags and achieving effectiveness in my clinic work, it is important to maintain the flexibility and diversity of the music therapy methods.

Working in a group setting was an economical and efficient setting in this prison considering the large number of treatment demands. Usually, inmates

from one unit would be arranged into one therapy group due to prison management consideration and prison guards' workload. Therefore, the clients in one group knew each other very well and some of them had interpersonal conflicts in daily life. Group therapy provided an opportunity for them to work on their daily conflicts. Multiple relationships between the therapist and other members offered the clients to experience various dimensions and lays of transferences, emotions and thoughts. The clients could experience resonance and support from people who had the similar experiences, and this turned out to be a very important and valuable resource for their therapeutic change.

It was more challenging for me to establish therapeutic alliance with prisoner clients than with those clients outside of prison. They were consistently concerned of the potential harm from the therapist and other prisoners (e.g., informing one's private information or inappropriate words and deeds to prison guards) as well as risk of punishment from prison guards. A certain amount of sessions was therefor required to build a constructive therapeutic relationship that enables the possibility of an effective music therapy intervention.

These clinical experiences raised the following questions: is group music therapy actually an efficient model for inmates in prison as I experienced in my work? Can group music therapy regulate their emotions? Can group music therapy help prisoners to enhance their social functioning? To answer these questions, more scientific and systematic evidence was needed.

Based on my experiences as a music therapist, I decided to conduct a RCT to explore the effects of group music therapy for improving emotional symptoms and social functioning of Chinese prisoners. In the process of conceiving this study, I utilized the experiences of my own, my supervisors, and other researchers in terms of study design, intervention, session numbers, and assessment. For instance, the considerations on which inclusion criteria would be adequate were influenced by the experience of the researchers and clinicians

from GAMUT, Uni Research, Bergen, Norway. In 2010, I had a meeting with the researchers from GAMUT. During this meeting, we discussed their RCT of music therapy for offenders (Gold et al., 2013). In their study, they did not found significant changes in the participants' mental health after intervention. They concluded that the reason for this was that many of the participants did not have negative emotion symptoms before their participation. Therefore, based on their experience, I was able to make clear inclusion criteria of emotional symptoms in my own RCT so that it would be possible to compare the changes of the participants. In addition, I chose group music therapy model using three music approaches (i.e., music imagery, improvization, and song writing) as the intervention because of its clinical relevance and feasibility to my music therapy practice mentioned above. Moreover, the number of 20 sessions was determined with the consideration of the workload of the therapist and prison guards, the administration of the prison, and the participants' therapeutic needs. Finally, I chose self-report scales to measure the inmates' emotions and self-esteem because I was interested in their perception of their own feelings rather than the emotional change observed by others.

For a better understanding of the overall effects of music therapy for offenders' mental health in correctional settings, I conducted a systematic review with PhD researcher Helen Leith, and my supervisor Christian Gold. Later on, during the writing up process, Professor Leif Edvard Aarø and Professor Terje Manger also contributed their valuable opinions, especially in terms of the rationale of using music therapy for offenders, the accuracy concepts for the outcomes, and choice of the professional terms. The systematic review placed the RCT into the whole context of music therapy for offenders in correctional settings and allowed readers to have an integral view of the music therapy effects for offenders' mental health rehabilitation (see Figure 1).

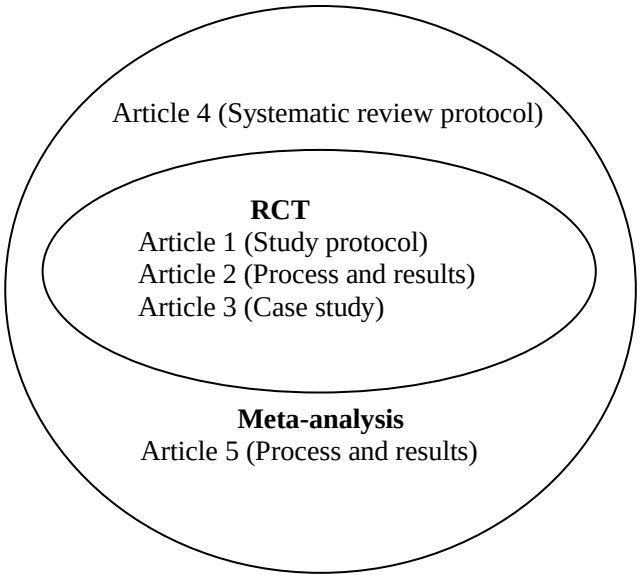

Figure 1. The relationship between the two studies and the five articles.

I hope this research will bring new information and knowledge to the effects of music therapy for improving offenders' mental health, and help with the future music therapy work in this field.

2. THE OVERALL STRUCTURE OF THE THESIS

This is an article-based thesis. The whole thesis comprises five publishable articles appended to an overview summary of the thesis. The overview summary chapters not only provide more detailed work to complement the concise contents of five articles, but also integrate these articles into a cohesive and unitary thesis. The overview summary is divided into three sections: introduction, studies, and discussion.

First, the introduction presented the key conceptions of the study and the theoretical framework of the methods. It elaborated the definitions and importance of the outcomes (i.e., anxiety, depression, and self-esteem of offenders), the available treatments for offenders, and the rationale for music therapy, especially in terms of group music therapy application for offenders. To avoid redundancy all of these contents were presented in complementary ways with the articles; however, necessary emphasis and repetition were unavoidable to maintain the coherence and explicitness of the thesis. The overall research questions were outlined following this chapter.

Second, the studies section summarized the RCT and the systematic review and meta-analysis respectively. The summary of the RCT combined the contents of the first (i.e., study protocol) and second article (i.e., the process and results). It introduced the study design, criteria for participants, measurements, preplanned intervention, and statistical analysis methods which were addressed in the protocol; and then it presented the study implementation process, data analysis, and data interpretation which were addressed in the second article. A case report was added as the third article. It was written after the intervention and was used as the therapist's reflections on the therapeutic process. The purpose of this case report was to illustrate the daily routine and prison management of this prison and their impacts on the intervention; to provide a

window for the treatment process, present the therapist's clinical considerations and her theoretical reflection on the intervention, and help readers' to deepen their understanding of group music therapy in a prison setting. These contents were also utilized in the discussion section. Next, the summary of the systematic review and meta-analysis utilized the contents of the fourth (i.e., systematic review protocol) and fifth article (i.e., the review process and results). It introduced the study design, implementation process, data analysis and interpretation of the study.

Third, the discussion section expounded the main findings, issues related to the study process, limitations, the implications for future research, the researcher's insights for clinical and academic gains out of this research, and the conclusion.

3. INTRODUCTION

3.1. MENTAL HEALTH PROBLEMS OF OFFENDERS

It is a worldwide problem that offenders often have mental health problems (James & Glaze, 2006; World Health Organization, 2007). These mental health problems range from a diagnosed mental illness to psychological or behavioral symptoms which are insufficient to meet the criteria of a diagnosed mental disorder. Studies showed that a high prevalence of offenders suffer from a wide range of mental symptoms and disorders, such as anxiety, depression, personality disorders, and psychotic symptoms (e.g., hallucinations, delusions) (James & Glaze, 2006; Prison Reform Trust, 2011; Wang, Li, & Hu, 2007). (a more detailed statistical information is provided in Article 5, p. 2). Low self-esteem, poor impulse control and related behavioral problems, as well as a limited ability to resolve conflicts constructively, are prominent examples of mental health-related problems which are widespread among prisoners. In addition, low empathy is strongly related to aggressive and offending behavior (Jolliffe & Farrington, 2004). These problems can be categorized into two domains: internalizing (i.e., emotional and cognitive symptoms) and externalizing problems (i.e., behavioral disorders), and it is common that an offender with mental health problems manifests symptoms that fall into both classifications.

Within the domain of internalizing issues, emotional problems such as anxiety, depression, anger, and mania, contribute to the mental health problems in prisoners (Birmingham, 2003; Listwan, Sperber, Spruance, & Van Voorhis, 2004). These negative affects such as depression, anxiety, and anger are usually entangled. Negative emotionality is closely associated with behavioral and cognitional symptoms, including persistent anger and irritability, insomnia or hypersomnia, psychomotor agitation or retardation, feelings of worthlessness or

excessive guilt, substance misuse, and suicide (James and Glaze, 2006). These problems interfere with offenders' ability of adjustment in prison, lead to poor engagement in cognitive skills treatment, and increase recidivism (Listwan, Van Voorhis, & Ritchey, 2007). As self-disclosure is a sensitive topic in prison, some inmates describe their emotion experience as concurrently provocative and restrained (Greer, 2002). Prisoners with negative emotions tend to have low motivation for therapy and high rate of attrition, therefore they hardly benefit from treatment (Howells, 2006).

Anxiety is one of the common emotional problems among offenders. It is defined as an emotion characterized by the feelings of tension, worried thoughts and physical changes (Kowalski, 2000). It includes physical, emotional, cognitive, and behavioral symptoms, such as irritability, restlessness, feelings of apprehension, unable to concentrate, shortness of breath, frequent micturition or diarrhea, stomachache or dizziness, tiredness, insomnia, and headache.

Besides prisoners' personality trait factors, the punitive and isolated environmental influences are the main cause of high anxiety of prisoners, such as the loss of autonomy and freedom, separation from family and society, and lack of normal interpersonal relationship. Offenders with high anxiety have difficulty with adjustments to imprisonment and a high rate of recidivism (Listwan, et al. 2004). Research showed that it is difficult for offenders with negative emotionality to benefit from cognitive skills intervention compared to other type of offenders (i.e., antisocial, dependent, situational naive), and their anxiety may be deteriorated in intervention if it is not taken carefully into account (Listwan, et al., 2007).

Depression is another prevailing emotional problem in prisons (James & Glaze, 2006; Mills & Kroner, 2005). It is a state of low mood and aversion to activity that can affect a person's thoughts, behavior, feelings, and physical well-being. Depression is characterized by irritability or restlessness, loss of

interest or enjoyment, social withdrawal, feelings of guilt, low self-esteem, insomnia or excessive sleep, poor appetite or overeating, feelings of fatigue, and lack of ability to concentrate or making decisions (American Psychiatric Association, 2013). Depression may coexist with other mental health problems, such as anxiety disorder, bipolar disorder, borderline personality disorder, substance abuse (Beckham, 2000). Especially, depression and anxiety may share the same symptoms, such as irritability, restlessness, insomnia, and an inability to concentrate.

Both external and internal factors may contribute to offenders' depression. For example, external factors may include bad interpersonal relationship, lack of freedom, physical disease, and economic difficulties in family. Internal factors include psychological problems, such as guilt, low-self esteem, and pessimism about future (C. J. Zhang, 2007). Depression often leads to suicidal tendencies and self-abusive behaviors. Suicidal problem is exacerbated in prison, with rates between four and six times higher than that of the general population, and up to eight times higher in newly released prisoners in the United States (Perry, Marandos, Coulton, & Johnson, 2010).

Self-esteem refers to the evaluation on one's own body, capabilities, achievement, values, and others' perceptions of oneself (Tesser, 2000). Research showed that a high rate of prisoners have a low level of self-esteem (Gullone, Jones, & Cummins, 1999). Especially new prisoners with a long term sentence have a lower level of self-esteem and a higher level of tension than the prisoners who have served a long time in prison (MacKenzie & Goodstein, 1985). It seems that the level of self-esteem in prisoners may rebound according to the prisoners' adaptive resources and accommodative coping strategies (Greve, Enzmann, & Hosser, 2001). However, the increase of self-esteem during incarceration cannot be simply interpreted as a recovery process. Prisoners with a long sentence are likely to develop prisonized personality which includes the traits of losing interest in the outside world, losing the

ability to make independent decisions, and identifying oneself as a prisoner at home within the prison context (MacKenzie & Goodstein, 1985). In addition, prisoners with a long term imprisonment have significantly higher levels of positive symptoms and depression than prisoners with a shorter term (C. J. Zhang, 2007). A decreased level of self-esteem is likely to occur accompanied by high anxiety at the final stage of incarceration before release (Li, Yan, & Tan, 2008; Liang, 2007).

Prisoners who suffer low self-esteem are more likely to have high anxiety and depression (Castellano & Soderstrom, 1997). On the other hand, people with high self-esteem combined with unstable emotions may have anger traits and high aggression tendency (Kernis, Abend, & Goldman, 2005). Only people with low negative affectivity and high self-esteem tend to be emotionally stable and optimistic about their abilities in general, which make it possible for them to have a more satisfactory and healthy life. Therefore, self-esteem and emotion factors together as outcomes can more precisely assess the improvement of prisoners' mental health.

3.2. CURRENT TREATMENTS FOR OFFENDERS WITH MENTAL HEALTH PROBLEMS IN CORRECTIONS

The scope of the services for offenders in correction systems involves both mental health and criminogenic domains. Because of the interlaced influences from multiple disciplines (i.e., psychology, sociology, and criminology), these treatments and programs are complex in terms of service providers, intervention choice, change agent, treatment outcomes, and assessment. Magaletta and Verdeyen (2005) attempted to classify them into three areas: mental health services, correctional programs, and mental health programs. Mental health services are mainly supported by psychology and psychiatry. These treatments provided by psychologists and psychiatrists focus on helping offenders with

diagnosed mental health disorders to alleviate their symptoms and increase adaptive functions. In contrast, correctional programs heavily rely on criminology and sociology while remain correlated to psychology. The programs designed by criminologists, sociologists, and psychologists focus on impacting offenders' criminal attitudes, therefore aiming to reduce the risk of reoffending (i.e., recidivism) and help offenders to become law-abiding citizens become the prior intervention outcomes. Third, mental health treatment programs, bridge two aforementioned areas by integrating multiple disciplines, such as criminology, psychology, sociology, bio-psycho-social theory, and biology. The treatment outcomes include offenders' mental health problems and their criminogenic risk and needs which are considered closely linked to each other. For example, a diagnosable mental disorder is very likely connected to criminal tendencies or a crime itself, such as anti-social personality disorder or substance abuse. The mental health treatments might focus on both rehabilitating offenders and reducing recidivism. Most of the current interventions for offenders with mental health problems pertain to the third area, mental health treatment programs, which address both mental health and criminogenic outcomes (Bewley & Morgan, 2011). However, the criminogenic outcomes (e.g., recidivism, behavioral problems related to the risk of crime) usually are the prior and emphasized ones (Heseltine, Sarre, & Day, 2011; Lipsey & Cullen, 2007). This phenomenon reflects the needs and responsibility of justice institutions as the competent authorities for managing offenders - to reduce recidivism and protect public safety.

The development of rehabilitation theories which provide the theoretical underpinning for the treatments and programs is in line with the justice departments' perspective. The most widely applied and influential model for offenders' assessment and rehabilitation is the risk-need-responsivity (RNR) model (Bonta & Andrews, 2007). As suggested by its name, this model states that the service should match offenders' risk of reoffending and focus on the

higher risk offenders. Second, the treatments should target offenders' criminogenic needs, namely dynamic risk factors, to reduce the risk of recidivism and prevent potential future harm to society. Third, as this model is heavily relied on personality and social learning theory of criminal behaviors which emphasize behavioral modelling and reinforcement, the responsivity principle asserts that the treatment should match offenders' learning style to maximize its effects. In this model, the offenders' level of reoffending risk is the criterion for treatment rather than their mental health symptoms or needs. On the contrast, a more recent rehabilitation theory called the good lives model (GLM) (Ward, Mann, & Gannon, 2007) addresses the offenders' needs by positing that the criminal offence is a maladaptive way to achieve a good life. So, interventions and programs for offenders should be designed for developing their knowledge and skills to meet these needs in socially acceptable ways. The RNR model is criticized as being overly structured with a lack of individualization, thus it overlooks offenders' human needs and leads them a lack of motivation for intervention to change (Marques, Wiederanders, Day, Nelson, & Van Ommeren, 2005). In contrast, the GLM is criticized of overly emphasizing the rights of offenders and having weak assessment approaches (Andrews, Bonta, & Wormith, 2011).

Under the influences of various rehabilitation theories and disciplines, there are a wide variety of mental health interventions for offenders. Knabb, Welsh, and Graham-Howard (2011) systematically reviewed the existing interventions for offenders with mental disorders. Ten theoretically and empirically validated treatment models were found, including behavioral or/and cognitive therapy (i.e., behavioral therapy, cognitive behavioral therapy, cognitive analytic therapy, dialectical behavior therapy), community therapy (i.e., therapeutic community, assertive community treatment), psychodynamic therapy (i.e., psychoanalytic therapy, attachment therapy), and arts therapy (i.e., art therapy, music therapy). Among these treatments, behavioral cognitive therapy which

addresses the change of problematic behaviors and reducing recidivism is the most commonly applied and recognized approach (Jolliffe & Farrington, 2007; Knabb, et al., 2011).

3.3. MUSIC THERAPY FOR OFFENDERS' MENTAL HEALTH IN CORRECTIONS

Music therapy as one kind of systematic intervention for offenders has a long history of application in correctional settings (Codding, 2002) including forensic psychiatry, correctional psychiatry, correctional institutions, and community services for probationers. Its application in corrections has received increasing attention from clinicians and researchers in recent decades (Compton Dickinson, Odell-Miller, & Adlam, 2013; Daveson & Edwards, 2001; Gold, et al., 2013; O'Grady, 2011; Thaut, 1989). This tendency is largely attributed by the growing mental health problems of offenders and their needs for more effective interventions (Dressing, Kief, & Salize, 2009; Dvoskin & Spiers, 2004). While the majority of current rehabilitation programs focuses on reducing recidivism (Lipsey & Cullen, 2007), music therapy seems to target more diverse outcomes.

Based on the RNR model (Bonta & Andrews, 2007), a variety of music therapy goals in correctional settings can be categorized into two categories: either to decrease dynamic risk factors (e.g., aggressive behavior, substance abuse) or to increase protective factors (e.g., empathy, prosocial attitude). From the perspective of mental health, they can also be classified further into reducing internalizing problems (e.g., anxiety, depression) or externalizing problems (e.g., aggressive behavior, poor coping skill). In clinical practice and research, it is common for music therapists to integrate both aspects into the therapeutic goals to meet offenders' emotional, behavioral, and social relational

needs (Hakvoort, Bogaerts, Thaut, & Spreen, in press; Huckel, 2008; O'Grady, 2011).

A tentative conceptual model was made to explicate the change in music therapy for offenders (Figure 2, it was also shown as Figure 1 in Article 4 and 5). In this model, music experiences and interpersonal interaction form two basic interactive aspects of music therapy. Music experiences can be an intrapersonal or interpersonal process in which interaction and relationships may take place. This process allows offenders to perceive, express, communicate, and change emotions through a nonverbal medium.

Based on three principles of human function, analogy, metaphor, and aesthetics, offenders are able to connect the emotional experiences and behaviors in music activities to their daily life, as well as to be attracted and motivated to participate music therapy. Consequently, they may improve communicative skill, social support ability, and empathy. These direct outcomes may lead to the improvement of mental health outcomes including internalizing and externalizing problems. As a result, recidivism and quality of life as downstream outcomes will be able to be achieved through the reduction of internalizing and externalizing problems.

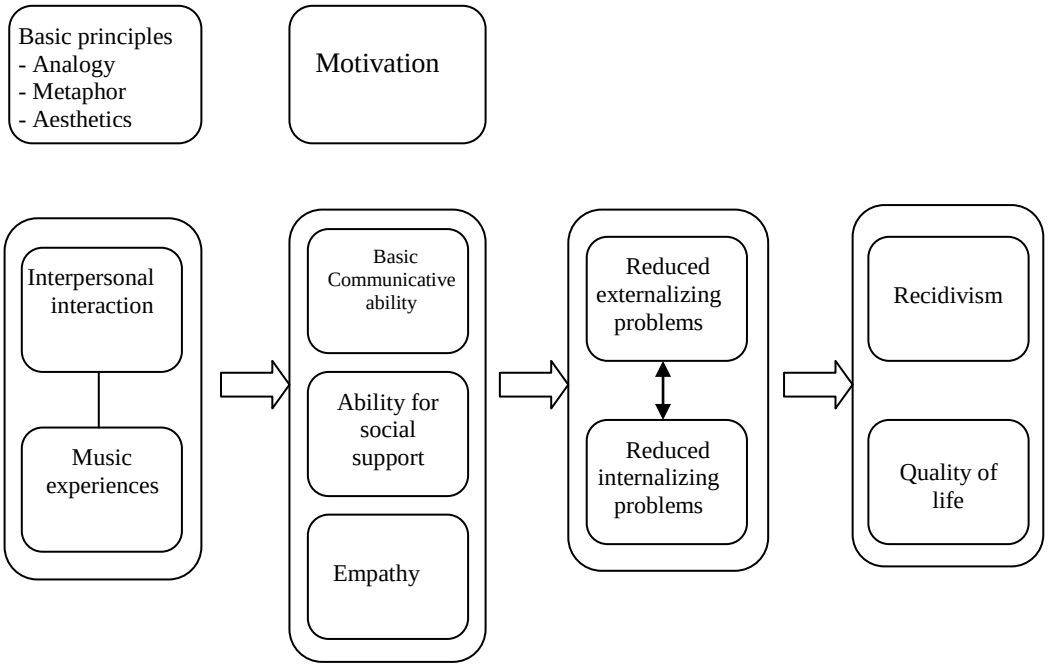

Figure 2. Tentative conceptual model of music therapy for offenders.

In the aspect of treatment approaches, various music therapy methods have been used in music therapy for offenders, such as improvization, song and metaphoric imagery, music creation and performance, and music relaxation (Daveson & Edwards, 2001; O'Grady, 2011; Smeijsters & Cleven, 2006; Thaut, 1989). A brief introduction of improvization, music and imagery, and song writing is provided in Article 2 (pp. 7-8). These music therapy approaches were applied either in an individual setting or a group setting.

3.3.1. GROUP MUSIC THERAPY

Group music therapy with offenders contributes its unique value in rehabilitation services in correctional settings. For instance, the strict

management, low level of education, and low trust between prisoners may interfere with inmates' verbal expression and communication in therapy (Thaut, 1999). Group music therapy provides opportunities for prisoners to nonverbally experience and express emotions, therefore to facilitate the indepth and meaningful communication under a range of restrictions. In addition, group music therapy is distinguished from verbal therapy in that it reinforces a here and now experience through a simultaneous musical expression and sharing rather than a linear and sequential verbal discussion.

Existential-Humanistic (E-H) psychology (Cooper, 2003; May, 1994; Schneider & Krug, 2009) oriented group music therapy which focuses on authentic relationships, freedom in limitation, existential loneliness, here and now experiences, and existential anxiety may be one of the suitable models for offenders. These important issues in E-H theories are likely to be amplified and intensified for prisoners within an isolated and penalizing correctional environment. Furthermore, the emphasis of autonomy, self-responsibility in the music therapy activities (e.g., improvization) allows an inmate client to experience oneself as a unique human being rather than one of the numbered submissive prisoners. This experience may encourage prisoners' motivation for therapeutic change and personal growth. In Article 1 (Music therapy in group settings section, pp. 4-5), the researcher further elaborated the rationale of using E-H theory influenced group music therapy for inmates.

Research has shown that music therapy was effective on improving mental health conditions for people with mental disorders and behavioral problems in terms of decreasing emotional and psychological symptoms and increasing social functioning (Albornoz, 2011; Erkkilä et al., 2011; Mössler, Chen, Heldal, & Gold, 2011). Only a few studies showed the effects of music therapy for mental health or behavior of prisoners (Gold, et al., 2013; Johnson, 1981; Lawday & Compton Dickinson, 2013; Thaut, 1989). Its impacts on offenders' emotions and self-esteem were inconclusive due to the methodological

weaknesses and practical problems in these studies. In Article 1, results of outcome research section (p. 6), the detailed information of the studies as well as their limitations were presented. In addition, no systematic review of music therapy for offenders has been conducted to summarize the overall empirical evidence of its effects.

4. RESEARCH QUESTIONS

Although significant effects have been found in a few previous studies, more rigorous scientific evidence is needed to investigate if music therapy can provide an effective method to help incarcerated population improve their mental health problems through a non-verbal and artistic medium. There is also a need for a systematic review of music therapy for offenders to provide synthesized scientific evidence for the effects of music therapy in correctional services.

The purpose of this research was twofold. First, for the RCT, the overall aim is to explore the effectiveness of group music therapy for prisoners in a prison in terms of anxiety, depression, and self-esteem; and to explore how music therapy can be effectively implemented in correctional settings. Second, the aim of the systematic review and meta-analysis is to summarize the overall effects of music therapy on improving mental health of offenders in correctional settings. Thus this study will enable a more comprehensive understanding of the functions and implications of music therapy for offenders' mental well-being and facilitate its development in clinical practice and research. The research questions for the whole research project can be summarised as follows:

Main questions

What is the effectiveness of music therapy on Chinese prisoners' mental health?

What is its effectiveness for offenders' mental health across settings and countries?

Sub questions

1. Does music therapy reduce offenders' anxiety?

2. Does music therapy reduce offenders' depression?

3. Does music therapy improve offenders' self-esteem?

4. Does music therapy improve offenders' other outcomes, such as social functioning, ability of behavior management, empathy, quality of life, substance abuse, and recidivism?

The outcomes of anxiety, depression, and self-esteem were addressed in the RCT, and all these outcomes were addressed the systematic review.

5. STUDIES

5.1. THE RANDOMIZED CONTROLLED TRIAL

As elaborated in the study protocol (Article 1), the researcher planned to conduct a two armed randomized controlled trial. Based on the power calculation, 192 participants (d = 0.5, test power: 87%) were intended be individually assigned to either experimental group or controlled group by a researcher who has no direct contact with the participants. Both groups were planned to receive standard care including mandatory labour, education, medical care, and psychotherapeutic care if necessary; the experimental group was planned to participate in 20 sessions (90 minutes per session) of group music therapy twice a week for 10 weeks in addition to standard care. State and Trait Anxiety Inventory (STAI), Beck Depression Inventory (BDI), Rosenberg Self-esteem Inventory (RSI), and Texas Social Behavioral Inventory (TSBI) should be used to measure anxiety, depression, and self-esteem at three times (before, after 10 sessions, and after 20 sessions of the intervention). The process of allocation, intervention, and tests was illustrated in the flow chart (Figure 1. in Article 1, p. 7). The study was approved by the Human Research Ethics Board of Aalborg University in March 20th, 2012, and it also received an administrative approval from the psychological education and counselling department of the prison in where the study took place. Trial registration: NCT01633125.

The main inclusion criteria included prisoners aged from 18 to 60 years old; the level of anxiety$\geq$ 49 on STAI or the depression level $\geq$ 14 on BDI . The length of sentence, physical health condition, psychotic disorder, and intelligence quotient were taken into consideration for the inclusion and exclusion criteria. A detailed explanation of the inclusion and exclusion criteria is provided in the Inclusion and exclusion criteria section of Article 1 (p. 8).

The experimental group were designed to be divided into approximately 12 therapy groups with 8 to 10 people in each group. The intervention was planned to take place in an activity room, and a prison guard would watch the group to ensure the therapist's safety. Influenced by E-H psychotherapy theories, the therapist planned to focus on building a favourable and trustful environment for group members to encourage their emotional experiences and expression, and facilitate their self-awareness for potential therapeutic change. Based on a self-developed treatment protocol, three music approaches, music imagery, music improvization, and song writing would be applied flexibly according to the group's therapeutic needs. An experienced clinician was planned to provide biweekly clinical supervision for the therapist to ensure the treatment quality and the therapist's safety. After the RCT was completed, the control group was planned to receive 5 weeks of group psychotherapy or music therapy intervention out of ethical consideration.

A psychological consultant who was not involved in the intervention was considered to conduct the tests. The four standardized self-report scales were in Chinese version with considerable validity and reliability (X. Zhang, Wang, & Qian, 1990; Zheng, Shu, Zhang, & Huang, 1993). Anxiety and depression were chosen as the main outcomes; self-esteem as a significant inner resource for prisoners was listed as the third outcome. Global and social self-esteem would be tested respectively by the RSI and TSBI. The researcher intended to utilize SPSS statistics 17.0 and R version 2.15.0 for the statistical analysis. All analyses were proposed to be performed on an intention-to-treat basis and should be two-tailed at a 5% significant level.

Following the study protocol, the implementation of this study lasted for one year from April 2012 to April 2013. A flow chart was provided in Article 2 (p. 23) to illustrate the whole study process. A total of 200 (76%) eligible participants were found out of 263 applicants. A researcher who had no direct

contact with the participants randomly assigned them to two groups of equal size using computer generated randomization.

Besides standard care, the experimental group participated in 20 sessions of 90-minute group music therapy twice weekly. The therapist introduced group members to three music therapy methods at the first three sessions. The treatment protocol for the intervention covered a number of common group topics such as friendship, trust, empathy, family, interpersonal relationships, and music therapy activities focused on these themes (one example of the activities is presented as Appendix 2, pp. 68-69). The full protocol is available from the author (at present only in Chinese). It will be prepared for publication separately in the future. The control group received standard care but no music therapy. After the study was finished, most of the participants in the control group took part in five weeks of group music therapy or psychotherapy.

Based on the statistical analyses plan described in the study protocol, the researcher applied descriptive analyses for the baseline of two groups to assess the homogeneity of variance and used t-tests to examine the effects of music therapy for independent samples. Moreover, linear mixed-models were conducted to identify potential predictors of change.

The participants' mean age was 35.5 (*SD* = 9.95) and they had eight years of education (*SD* = 2.61) on average. The great majority (80%) were incarcerated due to accusations of either physical injury or theft. The average length of sentences was 13.02 (*SD* = 2.02) months. Both groups took tassessments on anxiety, depression, and self-esteem using four self-report scales: STAI, BDI, RSI, and TSBI at three time points. The results of the pre-test showed that two groups were balanced on all variables (see Table 1 in Article 2, p. 19). Among three approaches used in the intervention, improvization was applied most frequently (44.6%), followed by music imagery (37.5%), and song writing (17.9%). A total of 16 participants dropped out because of illness, prison

transfer, lost interest in the study, and reduced sentences. At the mid-test, anxiety (STAI) and depression (BDI) scores were significantly lower (STAI-State: $p = .006$, $d = 0.40$; STAI-Trait: $p = .001$, $d = 0.49$; BDI: $p = .000$, $d = 0.54$) and self-esteem scores (TSBI) were significantly higher ($p = .011$, $d = 0.37$) in music therapy. In the post-test, anxiety and depression scores were significantly lower (STAI-State: $p = .000$, $d = 0.87$; STAI-Trait: $p = .000$, $d = 1.03$; BDI: $p < .001$, $d = 0.87$) in music therapy; self-esteem scores (TSBI and RSI) were significantly higher in music therapy (RSI: $p < .001$, $d = 0.51$; TSBI: $p = .001$, $d = 0.51$). All effect sizes were bigger in the post-test than in the mid-test; most effect sizes were from medium to large (see Table 2 in Article 2, p. 20). Age and educational level as predictors influenced the effects of music therapy. Younger participants had less anxiety on the STAI-Trait at the mid-test and higher self-esteem on the RSI at the post-test. Participants with lower level of education showed less anxiety at the post-test (see Table 3 in Article 2, pp. 21-22).

5.1.1. CASE REPORT

A case report which described the change process of one participant and his group during 20 sessions of group music therapy is provided as Article 3. It introduced the therapy progress of one participant and his group in a narrative way. Moreover, it illustrated the therapist's interpretation and reflections about the participants' therapeutic change, the role of music activities, therapist, and the prison guards, and the prison's influence on the group.

5.2. THE SYSTEMATIC REVIEW AND META-ANALYSIS

The systematic review and meta-analysis focused on summarizing the effects of music therapy on mental health outcomes of offenders in correctional settings.

In order to have a clear and transparent plan to clarify the researchers' review objectives and methods, and to prevent potential bias that would arise from changing the scope or the methods afterwards, the systematic review protocol was prepared and submitted for publication before commencing on the review. It outlined the scope of the review in terms of study topic, population and setting, and study design. It also provided a proposed plan including study selection criteria, search strategy, outcomes choices, data extraction, and method of data synthesis before the review was carried out. Although the systematic review protocol was prepared for publication in the Cochrane Database of Systematic Reviews (CDSR), the full review was submitted to another journal for reasons explained in "What I have learned from doing this research" , 6.6.3.1 (p. 43).

As described in the review protocol, the researchers planned to include RCTs and CCTs with any sample sizes, including worldwide published or unpublished works. The settings of the studies were restricted to correctional settings (i.e., prison, forensic hospital, detention center, and community based settings for probationers). There was no requirement on offenders' age, gender, nationality, offence type, or mental disorder diagnosis. The intervention had to be accord with Brusica's (1998) definition of music therapy that includes a systematic intervention process, music experiences, and therapeutic relationships between the client, music, and the therapist; and it had to be implemented by a credentialed music therapist. The comparison condition included standard care, no treatment, placebo therapy, or various music therapy approaches. A drop-out rate that not over 30% was acceptable for the review.

An exhaustive search was conducted through electronic searches on 19 databases and hand search on relevant websites, music therapy journals, and reference lists. Search terms consisted of 25 terms relating to music therapy and offenders. Necessary contacts to study authors were made for additional studies or data. Relevant outcomes for analysis contained self-esteem, behavior

management, anxiety, depression, and social functioning. Empathy, substance abuse, quality of life, and recidivism were considered for investigation, but no eligible studies related to these outcomes were found.

Two reseachers (Xi Jing Chen and Helen Leith) separately identified potential eligible studies by examining titles and abstracts. Then they independently collected the information relevant to the inclusion criteria using a data extraction form and evaluated the methodological characteristics of the studies through reading the full texts. The methodological quality of included studies was assessed using Cochrane Collaboration's criteria (Higgins & Green, 2011). Any disagreements were reconciled by the third author (Christian Gold). The characteristics and the methodological quality of the included studies were summarized in Article 5, Table 1 (pp. 22-23).

The overall effects sizes were calculated using Hedges' g and fixed effects model. I^2 statistic and Chi^2 test were used to assess statistical heterogeneity. The authors examined the number of sessions (i.e., 20 sessions and more vs. less than 20 sessions) and the quality of music therapy methods as sources for clinical heterogeneity to explain the presence of statistical heterogeneity. Random-effects model were planned to be used if the heterogeneity could not be explained.

Among 3375 discovered studies, five studies were included (N = 409) (Chen, Hannibal, & Gold, 2013; Gold, Mössler, et al., 2013; Hakvoort, et al., in press; Johnson, 1981; Thaut, 1989). Four studies were RCTs, and one was a CCT (Thaut, 1989).

The results of the meta-analysis showed the overall effects of music therapy on five outcomes. Music therapy was effective on increasing self-esteem (n = 233, ES = 0.55, 95% CI [0.28, 0.83], $p < .001$), alleviating anxiety (n = 256, ES = 0.64, 95% CI [0.39, 0.90], $p < .001$) and depression (n = 256, ES = 0.59, 95% CI [-0.34, 0.85], $p < .001$), and promoting social functioning (n = 271, ES =

0.38, 95% CI [0.14, 0.62], p = .002). However, it showed no significant effect on improving behavior management skill (n = 13, ES = 0.63, 95% CI [-0.50, 1.75], p = .28). The subgroup analysis showed that the significant heterogeneity between studies concerning anxiety (p < .001, I^2 = 92%) and depression (p = .002, I^2 = 89.1%) may be explained by the difference of treatment dosages.

The only CCT (n = 50) which compared three music therapy approaches, music and relaxation, improvization, and music listening showed no significant different effect on the comparison in terms of relaxation, mood/emotion, and thought/insight.

The results of this review showed that music therapy was able to improve offenders' self-esteem and social functioning as well as decrease internalizing mental health problems, anxiety and depression. The treatment dosage played a positive role on the effects of music therapy.

6. DISCUSSION

6.1. MAIN FINDINGS

This research aimed to examine the effects of music therapy on improving offenders' mental health for offenders in prison as well as to gain a more comprehensive understanding on the effects of music therapy for offenders' rehabilitation in corrections. The first part of the research questions was answered by the results of the RCT that music therapy was effective on reducing anxiety and depression as well as improving self-esteem for prisoners. Based on the experiences of previous studies (Gold, Mössler, et al., 2013; Thaut, 1989), this study carefully considered the research methodological issues, such as the usage of standardized measurements, test power calculation for an appropriate sample size, clear inclusion criteria for targeted participants, sufficient length of stay for participation, and flexibility application of the intervention methods. Therefore, the study provided strengthened empirical evidence for music therapy on improving inmates' mental health condition. Moreover, age and education level influenced the effects of music therapy. The sophisticated life experiences of older prisoners might have contributed to the slower change on anxiety and self-esteem after music therapy; for higher educated prisoners, more contrasting and deteriorated life situation compared to pre-crime life may have caused more worries.

The second part of the research questions was answered by the results of the systematic review. It supported and strengthened the findings in the RCT by showing that music therapy was an effective method for the improvement of offenders' mental health regarding their anxiety, depression, self-esteem, and social functioning. The effects of music therapy were associated with the duration of the intervention (i.e., dosage effects). The review also showed that the music therapy interventions echoed the current main offender rehabilitation

theories including RNR model (Bonta & Andrews, 2007) and GLM (Ward & Maruna, 2007). Music therapy not only helped offenders to decrease risk factors (Hakvoort, Bogaerts, Thaut, & Spreen, in press), but also increased offenders' capability and psychological strengths (Chen, Hannibal, & Gold, 2014; Johnson, 1981). It was obvious that music therapy was able to bridge these two theories and balance the different focuses in them. These positive outcomes may suggest that music therapy may also help offenders to achieve a satisfactory and law-abiding life; that will be an important question to be addressed in future research (see Discussion in 6.4).

Several technical and theoretical issues related to two studies are discussed in the following.

6.2. ISSUES RELATED TO THE INTERVENTION PROCESS IN THE RCT

6.2.1. THE INTERVENTION PROCESS AND THE TENTATIVE CONCEPTUAL MODEL

The therapeutic responses of participants in the experimental group reflected the researcher's assumptions proposed in the conceptual model of music therapy for offenders. Music experience provided the participants an opportunity to encounter their inner feelings, and it also served as a tool for interpersonal communication. The aesthetic qualities of music allowed each group member to initiate interpersonal connection in a nonverbal and nonthreatening way, and these communications permited diverse interpretations from every individual because of the abstract and metaphorical nature of music. Therefore this musical experience facilitated interpersonal connections as well as provided a necessary space and boundary for people who needed it. Take participant Hui for an example (his case was elaborated in Article 3). He was very defensive and isolated from his feelings at the beginning. During the

therapy, music experience enabled him to connect his unconscious feelings and assisted group members to approach and understand him. With the social supports from the group, Hui started to open and engage himself in the group. The group gradually established a constructive means of communication. With the increased emotional sharing and communication skills, they were able to work on intimate personal issues, therefore to reduce their internalizing problems. The empirical evidence of this study supported this hypothesis by showing that music therapy was effective on alleviating anxiety, depression, and improving self-esteem. Due to the limitation of this study, the rest of the assumptions in this conceptual model, such as the effectiveness of music therapy on the externalizing problems, recidivism rate, and offenders' quality of life, remained unknown.

6.2.2. THE APPLICATION OF THE HUMANISTIC EXISTENTIAL ORIENTED GROUP THERAPY IN THE INTERVENTION

The group music therapy approach influenced by the humanistic existential psychotherapy theory seemed to be suitable for the participants. For instance, the "here and now" factor emphasized in humanistic existential theory (Schneider & Krug, 2009) was an important issue for prisoners in the group process. Being isolated from family members, friends, and outside society, many inmates had difficulties accepting their new reality and adjusting to their life in prison. The therapist guided the group to pay attention to the issues that emerged in the moment including individual emotions, behavioral patterns, interpersonal interaction mode and the dynamic flow of the group. Group members were encouraged to live and work through these issues via music experiences. Moreover, under certain group regulations, the maximized sense of "freedom" was provided through the therapist's encouragement and modelling to facilitate each member's authentic expression and communication within the

restricted prison environment. The sense of being accepted, respected, and supported through the group experience allowed the member to further explore emotions and psychological issues. Consequently, the increased self-awareness might lead the improvement of self-responsibility and self-esteem.

Several group experience components reffered to as “therapeutic factors” by Yalom (Yalom & Leszcz, 2005) were manifested in the group music therapy process, such as instillation of hope, universality, altruism, development of socializing techniques, imitative behavior, interpersonal learning, group cohesiveness, catharsis, and existential factors. Despite the participants’ prerequisites for therapy, it seems that the group music therapy in this context shared a close commonality with the group therapy described by Yalom, although this was never made explicit for the participants. In Hui’s case, despite the unfavorable therapeutic environment in prison (i.e., the negative influence of the prison guards, untrustworthy relationship between inmates, strict prison rules), he was still able to experience a similar group process as described in other “normal” humanistic existential groups (Yalom & Leszcz, 2005). The findings of the RCT in this research also indicated that humanistic existential orientated group therapy was a suitable and effective therapy method for inmates in prison.

6.2.3. THE FLEXIBLE USE OF THE THREE MUSIC THERAPY APPROACHES

Three music therapy approaches which were applied in the intervention based on group progress and group members’ preference embody diverse characteristics of music experience. For instance, improvization can gives offenders freedom to experience and explore feelings through spontaneous musical creation. It may also facilitates their meaningful communication including courageous self-reveal and authentic feedback; music imagery utilizes

the metaphorical nature of music to help offenders to deepen their exploration in inner world and to bridge their constraint body with free mind; song writing may helps offenders embody their feelings and thoughts in lyrics and melody. It may require offenders to discover and experience emotions and thoughts first in order to articulate them in a song.

This study found that the participants chose improvization the most frequently, and song writing was chosen the least. This finding was in line with another music therapy study in this context (Gold, et al., 2013) that inmates chose improvization more frequently than song writing. This consistent finding may imply that improvization might be a preferable approach for this population. The researcher assumes that it might partly because the prevalence of offenders' low education interfered with their ability of articulating feelings; or they were hesitatant to express verbally to avoid potential punishment from the prison guards (Erickson & Young, 2010).

It is important for music therapists to consider offenders' preference and choose appropriate therapeutic techniques to meet their needs. However, given the large diversity of the offender population, improvization may not be the most appropriate method for all offenders. Previous studies found no significant difference between diverse music therapy approaches (i.e., music relaxation, improvization, and music listening) for inmates with mental disorders on relaxation, relaxation, emotion/mood, and thought/insight (Thaut, 1989). When selecting a suitable music therapy technique, music therapists will also need to conside offender clients' characteristics, cultural influences, and therapeutic goals.

6.2.4. PARTICIPANTS WITH ANTISOCIAL PERSONALITY DISORDER

The eligible participants were selected by their anxiety or depression symptoms, rather than psychological disorder diagnoses. However, the distinct therapy responses from the people with the traits of antisocial personality disorder caught the therapist's attention. Based on her observation during the therapy process, there was one particular type of participants who was often self-centered, impulsive, showed no remorse or shame for themselves and little empathy to others. These characteristics were in accord with the symptoms of antisocial personality disorder (ASPD; American Psychiatric Association, 2013). For instance, one prisoner liked to constantly boast how smart he was when committing fraud, and made fun of other group members' verbal sharing, music, and painting. He showed no interest or empathy for others. Sometimes, he intentionally belittled the therapist and the value of the therapy. He even intended to deliberately manipulate several group members to support his opinion. People with these traits were generally not able to contribute to the progress of therapy group; they could sometimes even be detrimental for the group progression. This finding was in accordance with the prior studies that it was difficult for people with ASPD to retain in therapy and benefit from treatment (Wilson, 2014). Since there is a lack of good quality evidence to prove the effects of any psychological treatment for people with ASPD (Gibbon et al., 2010), it is necessary to develop specially tailored interventions for people with ASPD to meet their complex needs, such as alleviating their disorder symptoms (e.g., lack of empathy, impulsivity, antisocial attitude) and behavioral problems (e.g., aggression, drug abuse).

6.2.5. THE ROLE OF PRISON GUARDS

Based on the therapist's notes, the influence of prison guards on the intervention is noteworthy. Many group members were very sensitive and cautious to prison guards' attitude conveyed by their comments, facial expressions, or just a subtle change of posture. It was because the therapy groups were formed by units, and the prison guard who supervised the group was usually the one who managed their daily lives. As a result, the prison guard's attitude and characteristics may have influenced the therapy process toward two directions. It either interfered with the therapy process or helped to establish a safe and favourable treatment environment for therapy. Therefore, the prison guard is an important factor that can influence the therapy effects. Unfortunately, there was no sufficient data to examine the prison guards' influence on the participants in the RCT.

Taking this discussion further, similar impact of a prison guard may exist in an inmate's daily life as a dynamic interaction between the two. For example, a prisoner's talk back may irritate the prison guard to react with more captious attitude; this reaction leads to the prisoner's escalating revolt and the prison guard's more severe punishment. Eventually, it might result in a confinement punishment to the prisoner and a more hostile and stressful prison management which is harmful for the mental well-being of prisoners and staff. On the other side, the positive influence may be attained if a constructive relationship is established. Music therapists can consider facilitating meaningful communication and understanding between inmates and prison guards by inviting prison guard to become a group member. Thus, it would also help to improve their relationship in daily life, and eventually lead to the improvement of the whole prison management.

6.2.6. CULTURE ISSUES AND THEIR INFLUENCES

This study did not investigate the culture differences on the music therapy effects because all the participants were Chinese. Nevertheless, the therapist experienced the unique feature of Chinese culture in group work. For instance, it was very difficult to build an equal atmosphere in group. As a tradition in China, all group members addressed the therapist as “teacher Chen” instead of her name. This appellation implied that the therapist was supposed to be an unquestionable authority who knew the right answer to everything, and it was impolite to question or doubt her words. To take another example, collective interests were supposed to be more important than personal interests, so a well-behaved person should agree with others rather than hold on a different opinion. Rooted in Confucianism, these traditional conceptions normally require people to suppress their own needs and feelings and to be submissive to authorities including parents, teachers, employers, and the government. These conventional social norms contradicted the rules of the therapy group, which advocate equality, mutual respect, authentic emotion expression, and spontaneity.

Several music therapy studies have recognized the importance of cultural impacts in music therapy practice, theory, supervision, and education (Darrow & Molloy, 1998; Wheeler & Baker, 2010; Yehuda, 2002). It is necessary for music therapists to acquire cultural knowledge and cultural varied music therapy techniques through systematic training for providing appropriate and effective services to clients (Valentino, 2006).

6.2.7. DROPOUT RATE

As regard to the issue of drop out, the 8% attrition rate in this study was substantially lower than the average attrition rate of 27.1% to 47% in psychological treatments for offenders (Olver, Stockdale, & Wormith, 2011; Wierzbicki & Pekarik, 1993). Research indicated that several predictors

contributed to dropout, such as low education level, low income, young age, criminal history, personality characteristics, problems linked to therapeutic relationship, and motivation for treatment (McMurran, Huband, & Overton, 2010; Olver, et al., 2011). The low dropout rate of the study supported the assumption in the abovementioned conceptual model of music therapy for offenders that music therapy was motivating for offenders to engage in the interventions and allowed them to benefit from the treatment. In addition, similarly low dropout rates (0% - 3%) in Chinese music therapy studies was found in a Cochrane review of music therapy for people with schizophrenia and schizophrenia like disorders (Mössler, et al., 2011). The low dropout rate might be related to Chinese culture as described above (see Discussion in 6.2.6). The participants might think it is impolite to others and disrespectful to the therapist if they quit.

6.2.8. THE AFTER-EFFECTS OF MUSIC THERAPY

The influence of music therapy did not end with the termination of the study. Some participants wrote mails to the prison guards to express their wish to continue music therapy. For some participants who had trauma experiences (i.e., the loss of significant ones, maltreatment experiences in childhood), the group music therapy experiences helped them to build up a trusting relationship with the therapist, other inmates, and prison staff; it also increased their inner strength to be prepared and motivated to work on these painfully traumatic issues. They applied for individual psychotherapy provided by psychological counselors from this prison to continue treatment after the study was completed. According to the feedback of the psychological counselors, it was very rare to have inmates actively demand psychological treatment before. The prison became aware of the potential benefit of music and attempted to use it in prison management. During meal times and breaks, some prison guards played

recorded music to comfort the prisoners' mood. Music was also used as a reward for rule abiding prisoners. They could ask the prisoner guard to play their favorite songs. Some prison guards became interested in music and started to learn an instrument. It seemed that music did not only impact the experimental group, but also the whole prison system.

6.3. LIMITATIONS

To summarize the limitations of the study discussed in two studies, several factors need to be taken into consideration. For the RCT, the generalizability of this study is limited because of the homogeneity in participants (i.e., Chinese male prisoners with minor crimes), the distinctive management and culture in this prison, and the flexible use of three music methods. Second, all the measures were self-reports, and there was a lack of objective measurements. Third, some other important outcomes were not included in this study, such as empathy, anger management, impulse control, and emotion regulation. Fourth, due to time and resource limitation it was not practical to conduct analyses for exploring the intervention process and diverse therapeutic factors which may influence the effects of the therapy including the therapist, prison guards, group cohesion, the length of treatment, treatment frequency. In addition, there was only one female therapist who did the intervention in the RCT, so the therapist's influence on the changes of outcome remains unclear. Finally, there was a lack of follow up data to examine the long term effects of music therapy.

As for the systematic review and meta-analysis of the music therapy for offenders, the limitations include the small number of studies (five studies), the compound quality of the studies, the absence of some important outcomes, and the lack of measurements for long term effects.

6.4. FUTURE RESEARCH

For future research, it is desirable to consider prisoners' demographic features (e.g., crime type, crime records, years of education, age, marital status), psychological characteristics (e.g., personality traits, mental disorders, empathy), as well as the influences of these features on the study design, intervention, and measurements. Some treatment issues, such as treatment frequencies, session length, choice of measurements, and attrition need further investigation. Future research should consider more randomized controlled trials with females and adolescent offenders of both genders, and more important outcomes related to prisoners' mental well-being, such as empathy, aggression management, and emotion regulation.

The therapist effect as a moderator variable can be considered in the future studies. The researcher can consider randomly assigning several therapists to do the intervention, and analyzing the relationship between the therapy's effects and the therapists' professional expertise (e.g., experience, therapy orientation), and personal characteristics (e.g., age, sex, personality).

With careful preparation, adequate project length, and cooperation with other colleagues and prison, future research can consider gathering follow up data. This data could include acquiring offenders' recidivism record, calling former prisoners regularly for their employment condition and family condition report after release.

As a by-product of this study, the impact of music therapy on the prison guards and the prison management was notable. In future research, it will be relevant to consider inmates, prison guards, and the prison management as a whole. Thus music therapy will be able to benefit not only inmates, prison guards, but also the prison system. To extend this thought, music therapy could continue to help an inmate to fit into the environment after one's release. Future research can explore how music therapy can help an inmate's transition from

prison to society by involving relevant people (e.g., prison guards, supervisor, family members, new employer and colleagues of the released inmates), and organizations into music therapy activities.

6.5. KNOWLEDGE DISSEMINATION

Aimed to reach readers from diverse disciplinary areas, except the case report article, three articles derived from the research were submitted to journals respectively focusing on music therapy, offender rehabilitation, psychotherapy, domains. They are Nordic Journal of Music Therapy, International Journal of Offender Therapy and Comparative Criminology, and Psychology and Psychotherapy: Theory, Research, and Practice. In addition, the systematic review was submitted to the CSDR to reach readers from a wider range of areas. Because this research involved in topics from multiple fields, such as criminology, psychotherapy, music therapy, group therapy, psychiatry, it was difficult to find the "right" journal for publishing these articles (see What I have learned from doing this research in 6.6.3). Interestingly, the review protocol was already cited in one book (Compton Dickinson, et al., 2013) as if it had been published in the CDSR; we also received an acceptance letter from the Cochrane group, which was claimed as a mistake by the editor later on.

The researchers also presented this study at several conferences held in Norway, China, Netherland, and Canada. It is hoped that this research can contribute new knowledge for music therapists, criminologists, correctional psychologists, psychotherapists, policy makers, and sociologists.

6.6. WHAT I HAVE LEARNED FROM DOING THIS RESEARCH

The researcher obtained a number of valuable experiences from undertaking her doctoral research both as a researcher and a music therapist. These gains

involved her reflections on the design, implementation, and analysis of the study at a technical level, the process of conceiving and publishing the articles, as well as a deeper understanding of the context of prison and treatment, systemic implication of music therapy, the role of music therapy in correctional service at a conceptual level. To avoid potential confusioin caused by the frequent switch between two roles, the researcher and the therapist, the first-person will be used in the following sections.

6.6.1. REFLECTIONS ON THE RCT DESIGN

6.6.1.1. Behavioral observation

At the initial stage of the study design process, I intended to collect objective data through behavioral observation and rule violation conduct report. This intention failed because the lack of staff for observation, the lack of specific standardized criteria and instruction for the observation, the difficulty of identifying and targeting specific behaviors related to emotional change and the lack of a systematic daily report from their data base. Some behaviors which were considered as rule violating behaviors for one staff might be acceptable for another staff. Staff might consciously or unconsciously neglect some rule violating behaviors of some prisoners who have good relationship with him. To avoid these biases, a detailed definition for targeted and rule violation behaviors and clear criteria for the observation need to be elaborately prepared, and a properly trained research assistant who acquired this knowledge is necessary to conduct the observation. The time, frequency, and duration of behavioral observation can be either in line with certain circumstances (e.g., lunch or dinner time, group meeting organized by prison guards) or with the interventions according to available resources.

6.6.2. REFLECTIONS ON THE RCT IMPLEMENTATION

6.6.2.1. Confidentiality issues

The problems related to confidentiality became an obstacle for the intervention. Unexpected visitors, such as public visitors or inspection officers, constantly came into the therapy room during the treatment without notice. Some prison guards discussed the issues that happened in the therapy during their daily meetings with the entire unite of prisoners. Although as a therapist, I put forth my best effort to keep the therapy in the “normal frame” by educating the prison guards and setting up the rules for the officers in the prison, it was impossible to keep an ideal therapeutic environment as in a normal setting. In addition, any participant could be led away by a prison guard during the treatment for family visiting, labor task, test, or other reasons. These realistic problems may have compromised the effects of music therapy. However, I have to admit that the harsh environment was the very reality in prison and one of the reasons contributing to prisoners’ mental health problems. One challenge for music therapists working in prison is to adapt their professional skills to accommodate the unpredictable prison condition.

6.6.2.2. Therapist’s identity and attitude toward prisoner participants

As compared to other populations, one unique characteristic of offenders is that they have committed crimes and are supposed to be punished. At the beginning, I found that my attitude towards offender clients was ambivalent. People questioned that why I wanted to help these bad people while many good people are waiting for help. Should I help them or not help? Did I help them to be a better person or a better criminal? To what extent should I treat them as normal clients while still remembering they are capable of doing harmful things?

Although there is no so-called right attitude of therapist, it is crucial for therapists to reflect and be aware of their ambivalence, self-doubts, and counter transference when working with offenders. These questions may influence therapists' therapeutic goals, intervention choices, attitude towards offenders, and therapeutic relationship. Therapists also need to consider offenders' characteristics, such as anti-social personality, propensity of violence. These issues may be handled through supervision, therapy for therapist, or client referral for protecting both the therapist and clients and ensuring the therapy's effenciency.

6.6.2.3. The importance of the therapeutic boundary

With the progress of the group intervention, the relationship between the therapist and the participants became closer. Some offenders started to write letters to me. They shared the difficulties in their lives and relationship problems with family members. They hoped that I could arrange an individual session to help them solve these problems instead of working with them in the group. These letters may convey several layers of meanings. First, the alliance between therapist and client was established well so that they were willing to work on their psychological problems with me. Second, it could imply that a confidential and strustful space had not been created because of the staff's behavior. Third, it may contain compound transferences toward me. Some of them asked for my phone number and said that they would like to continue music therapy after being released. An unclear therapeutic boundary could possibly compromise the group efforts and may endanger therapists' physical safety and psychological health. Therefore, clinical supervision and training are crucial to learn how to keep a clear therapeutic boundary while maintaining constructive therapeutic relationship with clients (Odell-Miller, 2012). Under the suggestions from my clinical supervior, I encouraged the participants who

sent me letters to discuss and work on their issues in the group. The prison officer told all of the participants that they could call of the prison psychological education department to reach the therapist when it's necessary.

6.6.2.4. The implementation of the music therapy protocol

At the initial phase of the study, a music therapy protocol was established to guide the implementation of the intervention based on the therapist's previous clinical experiences. It introduced diverse therapeutic goals and listed the procedure of the relevant music therapy activities. However, with the experiences I gained from conducting the intervention, there are some aspects can be modified and added to further develop this protocol. All the music activities can be categorized by the different therapeutic developmental stages of the group (Yalom & Leszcz, 2005, pp. 309-320). For some activities which can be used at different group stages, guidance can be provided to clarify the various efforts and tasks for the therapist. It is also necessary to guide the therapist to know as to how to deal with unexpected events, such as the sudden leave of a group member, the new incoming member, interruption of the prison guards, and the administrative change in the prison. Then last but not least, it will be important to illustrate the therapeutic boundary, therapist's self-protection, and supervision issues.

6.6.3. REFLECTIONS ON MUSIC THERAPY IN THE CONTEXT OF PSYCHOLOGICAL TREATMENTS FOR OFFENDER REHABILITATION

6.6.3.1 The Challenges and potentials on the disciplinary integration of music therapy and offender rehabilitation.

Together with the co-authors, I started to prepare the manuscript of meta-analysis of music therapy for offenders in correctional settings prior to the other two articles. We aimed to submit it to Cochrane Review Collaboration to reach

a wide range of readers. As the standard procedure for publishing a Cochrane review, we registered the subject, completed the manuscript of the Cochrane review protocol, and then submitted it for review. Unexpectedly, the revision process lasted for two years and ended with a mutual agreement on stoping the process for now after more than 10 times of revision. The main argument revolved around the classification of targeted population, the outcomes choices, and the conceptual model of music therapy for offenders. Should the population be caterozied by their age, crime type, or mental illness diagnosis? What outcomes should be the primary outcomes? What outcomes should be the secondary outcomes? What are the criteria for deciding the primary outcomes and secondary outcomes? Should the importance of outcomes be decided by the officer, doctor, therapist, or offenders themselves? These arguments revealed the current situation in offender rehabilitation field that professionals from various fields work with offenders for improving diverse preferential outcomes. Crimiologists, psychiatrists, psychologists, social workers, and officers all have their own perspectives on the criteria of offender classification (e.g., offence, or mental illness diagnosis, age), intervention methods (e.g., correctional program, medicine, or psychotherapy), or outcomes (e.g., recidivism, behavior, mental illness symptoms, or emotion). The policy and law related to offenders in different countries add more complexity to these divergences. The standard of conviction may be different from country to country. Although researchers have started to attempt to establish theoretical frameworks for bridging different forms of rehabilitation (i.e., medical, psychological, legal, moral and social) (Bonta & Andrews, 2007; Centre for Addication and Mental Health, 2013; Hakvoort & Bogaerts, 2013; Magaletta & Verdeyen, 2005; McNeil, 2012; Ward, et al., 2007), there is still a long way to go for a full and clear interdisciplinary understanding of offender rehabilitation.

Where does music therapy stand in the field of offender rehabilitation? Music therapy as an interdisciplinary subject has integrated with diverse

disciplines (e.g., medicine, psychology) and numerous theories for its rigorous scientific development. Its comprehensiveness enables music therapists that work with a wide range of populations to achieve multiple therapeutic goals including physical, mental, behavioral, and spiritual aspects. Yet, music therapy is distinguished from the integrated disciplines because of its unique characteristics. Thus, these features of music therapy cumulate complexity and difficulties when trying to explain and assess music therapy with the rationale and evaluation standard of other disciplines. The same is true for music therapy in the domain of offenders' rehabilitation.

There are two main rehabilitation frame works that music therapy can draw upon when work with offenders, the RNR model which addresses reducing risk behaviors, and the GLM theory which emphasizes increasing offenders' abilities. Both models have merits and have empirical evidence to support their effects. However, there have been constant debates between these two models in terms of theory quality, empirical validations, and implementation problems (Andrews, et al., 2011; Ward, Yates, & Willis, 2012).

From the results of this research, it was notable that music therapy was able to integrate both theories, and more importantly, the characteristics of music therapy have unique contributions to both theories. The motivation of offenders for intervention and change has been recognized as an important premise for effective rehabilitation approaches, and all programs struggle to improve the intervention motivation of offenders. In music therapy, the aesthetic, artistic, and recreational nature of music, the natural relationship of music to human's body, mind, and emotion spark offenders' motivation to participate and stay in the therapy. In addition, humankind's spontaneity and creativity manifested in music playing and composition are deeply rooted in our inherited nature. Therefore, it was not surprising that the dropout rate in this research was lower than in the other rehabilitation interventions.

These human characters are referred to as primary goods in the GLM. This theory assumes that offenders are inclined to seek out primary goods such as satisfactory life, inner peace, creativity, knowledge, community, excellence in play and work, excellence in agency, spirituality, and happiness, but in a maladaptive means. Music might be an appropriate way to help offenders achieve primary good. There are more treasures in music therapy for music therapy researchers and clinicians to find.

By bridging the frame work of music therapy to these offender rehabilitation theories, music therapy can combine the strength of these theories while maintaing the uniqueness of music therapy. It will facilitate the cooperation of music therapists with multidisciplinary team for offenders' rehabilitation and maximize exclusive contributions of music therapy in favor of both community and offenders.

6.7. CONCLUSION

This research provided scientific empirical evidence for the effects of music therapy on improving mental health of offenders in corrections in terms of anxiety, depression, self-esteem, and social functioning. It demonstrated that music therapy was effective for prisoners in Chinese prison, as well as for offenders from different settings and countries. It can be an appropriate treatment for offenders within a constraint and unfavorable enviornment. In the RCT, music therapy benefited not only the offenders, but also influenced the prison guards and the whole prison system. In the context of rehabilitation treatments for offenders, music therapy as a valuable means has shown its potential of bridging diverse offender rehabilitation theories to meet the needs of offenders's rights and public safety. This research has implications in clinical practice and research. It is hoped that the research can contribute to the

development of music therapy for offenders and the whole offenders' rehabilitation.

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CO-AUTHOR STATEMENT IN CONNECTION WITH SUBMISSION OF PHD THESIS

Title of the paper
Group music therapy for prisoners: Protocol for a randomised controlled trial

Authors:
Xi Jing Chen, Niels Hannibal, Kevin Xu, Christian Gold

Description of authors' contributions:
Xi Jing Chen was the main researcher responsible for designing and drafting the article. Niels Hannibal provided expert opinion during the writing up. Kevin Xu contributed professional opinion in the designing. Christian Gold supervised the study design, data analysis plan, and provided expert advice during the writing up. All authors have approved the final version of this article.

We hereby confirm the statement above is true and accurate.

_____	_____
Xi Jing Chen	Niels Hannibal
_____	_____
Kevin Xu	Christian Gold

CO-AUTHOR STATEMENT IN CONNECTION WITH SUBMISSION OF PHD THESIS

Title of the paper
Randomised trial of group music therapy with Chinese prisoners: Impact on anxiety, depression, and self-esteem.

Authors:
Xi Jing Chen, Niels Hannibal, Christian Gold

Description of authors' contributions:
Xi Jing Chen was the main researcher responsible for designing and conducting the study, conducting the group music therapy, the data collection and analysis, and writing the manuscript. Niels Hannibal provided expert opinion and advice during the data collection and writing up. Christian Gold supervised the study design and data analysis, contributed to sample allocation and some portion of data analysis (linear regression), as well as provided expert advice during the writing up. All authors have approved the final version of this article.

We hereby confirm the statement above is true and accurate.

_____ _____

Xi Jing Chen Niels Hannibal

_____

Christian Gold

CO-AUTHOR STATEMENT IN CONNECTION WITH SUBMISSION OF PHD THESIS

Title of the paper
Meet Hui in music: A case report of group music therapy for a Chinese male prisoner.

Authors:
Xi Jing Chen, Niels Hannibal

Description of authors' contributions:
Xi Jing Chen conducted the intervention, and drafted the manuscript. Niels Hannibal provided expert opinions and advice during the writing up.

We hereby confirm the statement above is true and accurate.

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Xi Jing Chen	Niels Hannibal

CO-AUTHOR STATEMENT IN CONNECTION WITH SUBMISSION OF PHD THESIS

Title of the paper
Music therapy for improving mental health in offenders (Protocol for a Cochrane Review)

Authors:
Xi Jing Chen, Helen Leith, Leif Edvard Aarø, Terje Manger, Christian Gold

Description of authors' contributions:
Xi Jing Chen conceived the review, drafted the first version of the protocol and suggested selection criteria. Helen Leith and Christian Gold helped with drafting and re-writing the protocol, provided feedback on selection criteria and other methods details. Leif Edvard Aarø and Terje Manger helped with improving the sections on how the intervention might work and description of outcomes.

We hereby confirm the statement above is true and accurate.

_____	_____
Xi Jing Chen	Helen Leith
_____	_____
Leif Edvard Aarø	Terje Manger
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Christian Gold	

CO-AUTHOR STATEMENT IN CONNECTION WITH SUBMISSION OF PHD THESIS

Title of the paper
Music therapy for improving mental health problems of offenders in correctional settings: Systematic review and meta-analysis.

Authors:
Xi Jing Chen, Helen Leith, Leif Edvard Aarø, Terje Manger, Christian Gold

Description of authors' contributions:
Xi Jing Chen was the main researcher responsible for designing and conducting the review and meta-analysis, and writing the manuscript. Helen Leith screened and selected eligible studies, evaluated the quality of the included studies as second reviewer, as well as contributed her professional opinion in the writing up. Leif Edvard Aarø, Terje Manger provided expert opinion during the writing up. Christian Gold supervised the study design, data collection, and data analysis. He also provided expert advice during the writing up. All authors have approved the final version of this article.

We hereby confirm the statement above is true and accurate.

_____	_____
Xi Jing Chen	Helen Leith
_____	_____
Leif Edvard Aarø	Terje Manger
_____	
Christian Gold	

APPENDICES

APPENDIX 1A. CONSENT FORM (ENGLISH VERSION)

Aalborg University
Dept. of Communication and Psychology
Address Kroghstraede 6, Aalborg, 9220
Phone number +45 130853-2891
Email address Hanne@hum.aau.dk

Project Titles: The effect of music therapy for prisoners
Principal investigator: Xi Jing Chen PhD student in Aalborg University
Supervisors: Christian Gold Professor in Communication and Psychology department, Aalborg University
Niels Hannibal Associate professor in Communication and Psychology department, Aalborg University
Consultant: Kevin Xu Associate professor in Psychology department, Peking University

Informed consent statement

1. Invitation to participant and Description of the project.
You are being asked to participate in our study of *the effects of music therapy on prisoners*. We are investigating this topic in order to further our understanding of
(1) If music therapy can effect prisoners' emotion.
(2) If music therapy can help the prisoners adapt their lives in and out of prison.
Participants will be assigned to different therapy group randomly. Your participation in the research study is voluntary. Before agreeing to be part of this study, please read and/or listen to the following information carefully. Feel free to ask questions if you do not understand something.

2. Description of procedure.
If you participate in this study, you will (may) be asked to
(1) Participate 10-20 sessions, 2 times a week of group music therapy.
(2) Fill in scales of anxiety, depression, and self-esteem.
(3) Keep a diary after each session during the study.

3. Risks and inconveniences.
(1)There is a possibility that some of the questions in the scales may make you feel uncomfortable. We will ask you about personal things and you may feel embarrassed at times when talking about the relationship with others etc.

This rarely happens, but if you do feel uncomfortable, you can do any of the following: you can choose not to answer certain questions; you can take a break and continue later, you can choose to stop the research. If you wish you can call officer or psychotherapist of your choosing to talk about your feelings.

(2) There is a possibility that sharing the feelings in the group may make your feel uncomfortable. You can choose not to talk, or only sharing your feelings when you want to.

4. Benefits

This study was designed to benefit you through your participation from the following aspects:

(1) Decrease your negative feelings.
(2) Develop better self-image of yourself.
(3) Develop better coping skill in and out of prison.
(4) Establish better relationship with inmates and others.

In Addition, What we learn from the study may help us to better understand the effects of music therapy on prisoners' emotion and self-esteem.

5. Confidentiality.

All information obtained from you during the study will be confidential. Your privacy will be protected at all times. You will not be identified individually in any way as a result of your participation in this research. The data collected however, may be used as part of publications and papers related to (The effects of music therapy for prisoners). If participation is anonymous you may note that here. If data contain any information against the law, mandated reporting to prison administration is required.

6. Voluntary participation.

Your participation in this study is entirely voluntary. You may refuse to participate in this research. Such refusal will not have any negative consequences for you. If you begin to participate in the research, you may at any time, for any reason, discontinue your participation without any negative consequences.

7. Other consideration and questions.

Please feel free to ask any questions about anything that seems unclear to you and to consider this research and consent form carefully before you sign.

Authorization: I have read or listened to the above information and I have decided that I will participate in the project described above. The researcher has explained the study to me and answered my questions. I know what will be asked of me. I understand that the purpose the study is to understand the effect

of psychotherapy on prisoners. If I don't participate, there will be no penalty or loss of rights. I can stop participating at any time, even after I have started.

I agree to participate in the study. My signature below also indicates that I have received a copy of this consent form.

Participant's signature _____

Date_____

If you have further questions about this research project, please contact the principal investigator, (Xi Jing Chen email: xijing@hum.aau.dk, Phone number: XXXXXXXX).If you have questions about your rights as a research participant or if you have a research related complaint please contact Officer XXX at psychotherapy room, address: 2nd floor, Psychological health and education center, XX Prison. Phone number: XXXXXXX

APPENDIX 1B. CONSENT FORM (CHINESE VERSION)

知情同意书

研究题目：音乐治疗对服刑人员的作用
首席研究者：陈蒽静 奥尔堡大学 博士生
督导： Christian Gold 奥尔堡大学 沟通与心理系 教授
Niels Hannibal 奥尔堡大学 沟通与心理系 副教授
顾问：徐凯文 北京大学 心理系 副教授

知情同意声明
1. 邀请参与活动和项目描述
您被邀请参加我们的关于音乐治疗对服刑人员的作用的科研项目。我们针对这个课题进行研究旨在增进我们对于以下几方面的理解：
（1） 是否音乐能影响服刑人员的情绪。
（2） 是否音乐能帮助服刑人员适应在监狱中和监狱外的生活。
参与者将被随机分配到不同的治疗组。您的参与是自愿的。在同意参加这个研究之前，请仔细阅读或/聆听以下的信息。有任何不懂的内容欢迎提出问题。

2. 过程描述
如果你参与这个研究，你将（可能）被要求
（1）参与 10-20 次，每周 2 次的团体音乐治疗。
（2）填写焦虑，抑郁，和自尊量表。
（3）在每次治疗后写日记。

3.风险和不便
（1）有可能在量表中的某些问题会让你感觉不舒服。我们将问你一些个人的信息，有时你谈到与他人关系的时候可能感到尴尬等。这样的事件极少发生，但是如果你感到不舒服，你可以做以下的任何事：你可以选择不回答某些问题；你可以休息一会儿再继续；你可以选择终止参与。你也可以打电话给警官或心理治疗师来讨论你的感受。
（2）有可能在团体中分享你的感受会让你觉得不舒服。你可以选择不说，或者只分享你愿意说的感受。

4. 益处
这个实验希望你通过参与从以下几个方面受益：
（1）降低你的负面感受。
（2）发展你更好的自我形象。
（3）发展在监狱中和监狱外的更好的应对技能。
（4）与狱友及他人建立更好的关系。
另外，我们从研究中学习到的知识可能帮助我们更好的理解音乐治疗对于服刑人员的情绪和自尊的作用。

5. 保密
我们会保密在研究中所获得的你的信息。你的隐私在所有时候都受到保护。你的参与结果不会暴露你的身份。数据搜集的信息，有可能作为发表的关于音乐治疗对于服刑人员的刊物的一部分。你的可以匿名参加。如果数据包含任何违反法律的信息，则必须强制要求报告给监狱管理部门。
6.自愿参与
你参与此研究完全基于自愿原则。你可以拒绝参加这个研究。这样的拒绝不会对你造成任何负面结果。如果你开始参与研究，你可以在任何时候，因为任何原因终止你的参与，并且不会有任何负面结果。

7. 其他注意事项和问题
如果以上有任何你不清楚的地方，请随时提出问题。请在签字之前仔细考虑这个研究和知情同意书。

授权：我已经阅读或聆听了以上信息并且决定我将会参与以上所描述的研究。研究者已经向我解释了研究并且回答了我的问题。我知道我将被问到什么。我理解这个研究的目的是了解音乐治疗对服刑人员的作用。如果我不参加，不会有任何惩罚或权利的损失。即使在我开始研究之后，我也可以随时停止参与研究。

我同意参与这个研究。我下面的签名也表示我已经收到了一份这个知情同意书的副本。

参与者签名_____

日期_____

如果你有任何关于这个研究的问题，请联系首席研究员，(陈蒽静 email:xijing@hum.aau.dk, 电话：XXXXXXX). 如果你有关于作为研究参与

者的问题，或你有与研究相关的投诉，请联系心理治疗室 XXX 警官，地址：XX 监狱，心理健康与教育中心，2 层，电话：XXXXXX）

APPENDIX 2. ACTIVITY EXAMPLE IN THE TREATMENT PROTOCOL

Connect your feelings with music

Activity
Group music imagery

Goals
1. Increase curiosity to inner world exploration.
2. Help to establish relationship between music and self
3. Increase self-awareness of different emotions
4. Facilitate interactions among group members

Equipments and instruments
1. Four pieces of music which represent four different feelings, such as happiness, sadness, calmness, and anxiety. Each piece can be 3 to 7 minutes, and it can be CD music or improvizational music played by the therapist.
2. A CD player (if necessary).
3. Musical instruments (e.g., piano, guitar, flute, drums) for the therapist's improvization.
3. Oil pastels, or color pens.
4. A4 sized white paper, with a big circle (mandala) on each paper.

Process
1. Music therapist tells the group member that they will listen to four short pieces of music. They may have different feelings when listen to each of them.
2. Music therapist plays four pieces of music, and ask group member to draw according to their feelings during the interval (about 5 minutes).
3. After everyone finish the drawing, group member discuss each one's drawing and feelings in turn.

Suggested topics for discussion
1. What do you feel when listening to each piece of music?

2. What differences in music make you feel different?
3. Which music is your favorite? Which music you didn't like, and why?
4. What did you draw to present your feelings? Which feeling did you like most, and which one you didn't like, and why?
5. Are there any similarities in the group members' drawings? Any common feelings related to the same music piece?
6. What do you do when you feel good? What do you do to adjust your mood when you feel bad?
7. Whose comments are similar to yours, do you have anything to add?

THESIS ARTICLES

Article 1. Chen, X. J., Hannibal, N., Xu, K., & Gold, C. (2013). Group music therapy for prisoners: Protocol for a randomised controlled trial. *Nordic Journal of Music Therapy*, 1-18. doi: 10.1080/08098131.2013.854268

Article 2. Chen, X. J., Hannibal, N., & Gold, C. (2013). *Randomised trial of group music therapy with Chinese prisoners: Impact on anxiety, depression, and self-esteem*. Manuscript submitted for publication.

Article 3. Chen, X. J., & Hannibal, N. (2014). *Meet Hui in music: A case report of group music therapy for a Chinese male prisoner*. Manuscript submitted for publication.

Article 4. Chen, X.J., Leith, H., Aarø, L. E., Manger, T., & Gold, C. (2013). *Music therapy for improving mental health in offenders (Protocol for a Cochrane Review)*. Manuscript submitted for publication.

Article 5. Chen, X. J., Leith, H., Aarø, L. E., Manger, T., & Gold, C. (2014). *Music therapy for improving mental health problems of offenders in correctional settings: Systematic review and meta-analysis*. Manuscript submitted for publication.

SUMMARY

Music therapy for improving mental health problems of offenders in correctional settings investigates the effects of music therapy for offenders' mental health through a randomized controlled trial (RCT) and a systematic review and meta-analysis. In addition, a case report, informed by existential humanistic theory, demonstrates the intervention process of the RCT through illustrating one patient's therapeutic process of change. The results show the significant effects of music therapy on anxiety, depression, self-esteem, social functioning. This research will provide music therapists, forensic psychotherapists, psychologists, criminologists, and others working in the field new knowledge about the effects of music therapy for offenders, as well as a fuller understanding of music therapy in correctional settings.

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