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Music Therapy in Prison
A systematic Review

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Alina Marianne Marschner BA

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English abstract

This master's thesis uses a systematic review to examine how music therapy interventions affect incarcerated individuals in prison settings. A total of 46 studies from various countries and institutional contexts were included, primarily employing qualitative designs alongside some mixed-methods and quantitative approaches, and covering a range of music-based interventions such as traditional music therapy, music education, choir projects, rap/songwriting, and gamelan ensembles. Across these studies, the findings consistently indicate positive effects on psychosocial functioning, including self-esteem, emotion regulation, social skills, and identity development, as well as on perceived sense of community and, in some cases, indications of reduced recidivism. Music therapy in prison offers a protected space for emotional expression, relationship-building, and the rehearsal of new social roles and coping strategies. Methodological challenges arise from security-related limitations, small sample sizes, lack of control groups, and the predominance of qualitative research, all of which limit generalizability and evidence of long-term outcomes. Overall, the thesis highlights the potential of music therapy as a meaningful rehabilitative component in correctional settings while also identifying substantial research gaps, especially in German-speaking countries and regarding standardized, comparable evaluation designs.

Deutsches Abstract

Diese Masterarbeit untersucht anhand einer systematischen Überprüfung, wie sich musiktherapeutische Interventionen auf inhaftierte Personen in Gefängnissen auswirken. Insgesamt wurden 46 Studien aus verschiedenen Ländern und institutionellen Kontexten einbezogen, die hauptsächlich qualitative Designs sowie einige gemischte Methoden und quantitative Ansätze verwendeten und eine Reihe von musikbasierten Formaten wie traditionelle Musiktherapie, Musikpädagogik, Chorprojekte, Rap/Songwriting und Gamelan-Ensembles abdeckten. Die Ergebnisse dieser Studien zeigen durchweg positive Auswirkungen auf die psychosoziale Funktionsfähigkeit, einschließlich Selbstwertgefühl, Emotionsregulation, soziale Kompetenzen und Identitätsentwicklung, sowie auf das empfundene Gemeinschaftsgefühl und in einigen Fällen Anzeichen für eine Verringerung der Rückfallquote. Musiktherapie im Gefängnis bietet insbesondere einen geschützten Raum für den Ausdruck von Emotionen, den Aufbau von Beziehungen und das Einüben neuer sozialer Rollen und Bewältigungsstrategien. Methodische Herausforderungen ergeben sich aus sicherheitsbezogenen Einschränkungen, kleinen Stichprobengrößen, dem Fehlen von Kontrollgruppen und der Vorherrschaft qualitativer Forschung, die alle die Verallgemeinerbarkeit und die Aussagekraft langfristiger Ergebnisse einschränken. Insgesamt hebt die Dissertation das Potenzial der Musiktherapie als sinnvolle Rehabilitationskomponente in Justizvollzugsanstalten hervor und identifiziert gleichzeitig erhebliche Forschungslücken, insbesondere in deutschsprachigen Ländern und in Bezug auf standardisierte, vergleichbare Evaluationsdesigns.

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1. Introduction

This master's thesis examines music therapy in prisons.

In Austria, music therapy is defined as an independent, scientific-artistic form of therapy based on the targeted use of music and musical improvisation in a therapeutic relationship. It should always serve to promote, restore, or maintain mental, physical, and social health (Österreichischer Berufsverband für Musiktherapie, 2025).

Depending on the regulations in individual countries, music therapy is defined more or less strictly. In order to limit the use of music therapy to a specific field of work, the prison system was chosen here, as it plays an important role in society but is often overlooked. However, it is important to note that forensic therapeutic prisons or other psychiatric institutions are excluded. The reason for this is the complexity of psychiatric disorders, which can differ greatly from the average mental state of inmates.

There are already several studies that address this topic, particularly in the United States (US) and the United Kingdom (UK). These two countries are pioneers in music therapy research. In German-speaking countries, however, there is still a large gap in research, as music therapy in prisons is only slowly gaining ground here. This thesis serves to draw attention to this gap.

Therefore, this paper poses the following research question: What effect does music therapy have on inmates in the prison system?

The approach taken in this thesis corresponds to the classic method of a systematic review. First, all papers that appear under the defined keywords in the specified databases are collected. Exclusion criteria are then established, based on which the papers found are first reviewed according to their titles, then according to their abstracts, and finally according to their full texts, and excluded if necessary. The remaining studies are subjected to quality checks, analysed, and the results interpreted.

It is assumed that the studies will primarily produce positive results. Positive effects are expected, particularly in the areas of mental health, self-esteem, and social relationships. Based on these assumptions, it is important to consider publication bias in relation to the

studies. This describes the tendency for studies to be published based on the direction or strength of their findings. Those that produce positive results are more likely to be published, meaning that negative findings often remain unpublished and cannot be taken into account (DeVito & Goldacre, 2019, pp. 53–54). Publication bias cannot be ignored in the studies considered in this review, as it cannot be ruled out entirely. Nevertheless, the studies provide meaningful results.

Prison inmates face a variety of challenges, encountering both physical and mental difficulties that they must overcome. Certain programs are designed to use the time spent in prison to strengthen the inmates' development. This is also intended to facilitate their reintegration into society. One frequently used method is music therapy, which positively supports and promotes various social and personal qualities.

In this introductory section, I will first highlight the fundamentals of music therapy with particular focus on Austria, Germany, and the UK. I will also examine the provision of music therapy in prisons, the psychosocial and emotional challenges faced by inmates, and the general effects and goals of interventions in correctional facilities.

1.1 Fundamentals of music therapy

In recent years, music therapy has received increasing attention. This has not only given rise to general interest in this discipline, but also improved access to it. The first training program for this profession was offered at the University of Kansas as early as 1946 (Bunt et al., 2024, S. 37). In the US, this profession has been steadily expanded and improved since then. In Europe, in comparison, it took until the early 1950s that the first training courses were offered. The UK was the first to start, but other European countries followed suit (Bunt et al., 2024, p. 37).

When this field of work first arose, music therapy was almost exclusively practiced by musicians. The job description in the medical, psychological, and educational fields has only developed over time. This development has allowed applied music therapy to better respond to individual settings. For example, indigenous peoples can now be offered a different form of music therapy than in Central European countries, where Western music predominates. This allows music therapy to be personally tailored to the participants (Bunt et al., 2024, p. 39).

1.1.1 Austrian Association of Music Therapists (ÖBM)

In Austria, music therapy is an independent, scientific-artistic form of therapy that focuses on the experiences, creativity, and expression of patients. It is based on knowledge about sound and is carried out by specially trained music therapists whose qualifications are represented and continuously developed by the Austrian Association of Music Therapists (ÖBM). The practice of music therapy in Austria is regulated by clear guidelines and standards based on evidence-based research and artistic and clinical experience. This enables a comprehensive and patient-oriented approach within the Austrian healthcare system, focusing on individual needs and contexts. The work of music therapists in Austria covers a wide range of applications, from promoting social integration and individual resources to providing support during illness, rehabilitation, and prevention. Access to music therapy is open to people throughout Austria, with the therapeutic relationship, creative expression, and shared musical experience being central elements of the treatment. The term “music therapist” is therefore protected in Austria and may only be used by those with the appropriate training.

However, other kinds of music-based intervention are also offered in some settings. In these cases, the person in charge is not a certified music therapist and can only provide educational services, not therapeutic ones. Nevertheless, these programmes may also have a positive effect on participants (Österreichischer Berufsverband für Musiktherapie, 2025).

1.1.2 German Music Therapy Association

The German Music Therapy Association defines modern music therapy as follows:

> "Music therapy is a practice-oriented scientific discipline that interacts closely with various scientific fields, in particular medicine, social sciences, psychology, musicology, and education. The term ‘music therapy’ is a summary term for various music therapy concepts, which are essentially psychotherapeutic in nature, as opposed to pharmacological and physical therapy." (Deutsche Musiktherapeutische Gesellschaft (dmtg), 2010).

The approaches mentioned above – behavioural, systemic, and humanistic therapy—form the basic models of music therapy. There are two additional approaches. In active music

therapy, patients themselves play music, sing, and dance. In receptive music therapy, on the other hand, music is actively listened to. Both approaches can take place in individual or group sessions and are adapted to the participants (Federal Association of Music Therapy, 2019).

Music is a means of expression that anyone can use without prior knowledge. In music therapy, the emotional and nonverbal effects of music can be used to discuss biographical, cultural, physical, or psychological experiences. Due to this wide range of music therapy applications, a variety of goals can be pursued. This means that it can help promote perception, expression, and relationship skills, activate resources, self-esteem, and creativity, and improve self-regulation, relaxation, and quality of life. In addition, it can support coping with illness and pain management and promote social integration. This is achieved primarily through individualised treatment of patients (Federal Association of Music Therapy, 2019).

As already mentioned, there are various areas of application for music therapy. It is most commonly used for mental, psychosomatic, or neurological illnesses, developmental disorders, or disabilities, as well as in palliative and hospice care. Even people with severe limitations can be treated with music therapy. In addition, music therapy can also be used for prevention and for personality and team development (Federal Association of Music Therapy, 2019).

1.1.3 British Association for Music Therapy

In the UK, the British Association for Music Therapy (BAMT) defines music therapy as a form of psychological therapy that uses the creative use of music within a therapeutic relationship to promote communication, expression, and healing processes (British Association of Music Therapy, 2018). It is recognized by the UK National Health Service (NHS) and is used in clinical, educational, and social contexts, for example with people with neurological disorders, developmental disorders, or mental illness, as well as in palliative care (British Association of Music Therapy, 2018).

1.1.4 Comparing the different regulations regarding music therapy

In contrast to the German definition, which describes music therapy primarily as a scientific discipline with interdisciplinary references and different conceptual approaches (Deutsche Musiktherapeutische Gesellschaft (dmtg), 2010), the focus in the UK is more on the therapeutic relationship and the process-oriented use of music as a means of communication. While in Germany the emphasis is on anchoring in basic psychotherapeutic concepts such as behavioral therapy, systemic therapy, or the humanistic approach, in the UK the emphasis is on direct experience in the musical process, which enables nonverbal expression in particular. Both countries see music therapy as a flexible process that is individually tailored to the needs of the patient. However, they differ in the weighting between theoretical and conceptual foundations, like in Germany, and practice-oriented clinical application, like in the UK. The Austrian model combines evidence-based research with artistic and clinical expertise, ensuring a holistic and patient-centered approach within the healthcare system. Music therapy in Austria is applied across diverse contexts and prioritizes the therapeutic relationship and shared musical experience. The professional title “music therapist” is legally protected, distinguishing it from non-therapeutic music interventions, which, while beneficial, serve educational rather than clinical purposes.

1.2 Music therapy in the penal system

At the beginning of the 20th century, music therapy emerged as an approach for the prison system. It was used both as a treatment method and for the rehabilitation of prisoners. Therefore, music was used as a means of discipline as well as emotional stimulation (Clair & Heller, 1989, pp. 167–169).

In the 1920s, Willem van de Wall played an important role in music therapy. He introduced this form of therapy in institutions such as prisons, psychiatric clinics, and facilities for people with special needs. Van de Wall saw music as more than just entertainment. He was convinced that music could be used as a socializing and therapeutic tool, especially as a positive influence on inmates. He emphasized the importance of structure and regularity in the use of music. He saw group sessions in

particular as having a special effect on the rehabilitation of prisoners (Clair & Heller, 1989, pp. 171–172).

Van de Wall was certain that musical activities could promote feelings such as hope and belonging. This would encourage social integration and emotional stability. By utilizing the therapeutic effects of music in prisons, the aim is to strengthen the inmates' sense of community and improve their self-perception (Ivanova, 2022, pp. 99–100).

At the beginning of the 20th century, however, prisons themselves underwent a transformation. The goal of punishing inmates was replaced by the goal of rehabilitating them. At that time, issues such as race, class, and gender still played a very important role in prisons. As a result, many early documentaries about music in prisons often only feature music groups made up of black men. All other groups of people were hardly considered (Ivanova, 2022, pp. 97–98).

1.3 Psychosocial and emotional challenges in the penal system

The penal system presents a number of challenges. As one might imagine, it is a psychological and emotional strain for most inmates. Isolation from society and the lack of social relationships usually result in psychological damage during the time of a prison sentence. According to Haney (2002), psychological adaptation to a pathological environment occurs automatically. This leads to poorer regulation of emotions, increased mistrust, hypervigilance, decreased self-esteem, and social withdrawal or destructive behavior. More specifically, this means that prisoners experience a massive loss of autonomy in the prison system. Their freedom of choice, daily routines, contacts, and basic personal habits are strictly regulated and predetermined. This can impair their emotional stability during and after their imprisonment. As a result, they may develop a dependence on the prescribed structure and experience lasting changes in their patterns of thought and behavior (Haney, 2002, p. 81).

In prison, emotional openness among inmates is often seen as a sign of weakness. As a result, inmates learn to systematically suppress their feelings during their imprisonment. They adapt to the social roles assigned to them among the inmates and, in doing so, lose their authenticity and the trust of their fellow inmates. In the long term, this can lead to

an inability to form relationships and antisocial behavior. At the same time, relationships outside the prison system often break down. Family and friendships do not always withstand the pressure and regulations of the prison system. Long-term imprisonment can therefore lead to chronic loneliness, withdrawal, and the loss of social skills. This makes reintegration into society after release more difficult. Traumas from previous life situations and experiences can also be triggered in prison. The loss of control and the frequent presence of violence can lead to retraumatization. Young prisoners, mentally ill individuals, and female inmates are particularly susceptible to this issue (Haney, 2002, pp. 83–84).

The psychosocial and emotional stress caused by imprisonment is complex, profound, and has long-term effects. Institutionalization, emotional detachment, social isolation, and traumatic reactivation not only impair mental stability during imprisonment but also make it difficult to return to society.

1.4 Effect and goals of interventions in prisons

In addition to music therapy, there are other forms of therapy available in prisons. Since inmates have different interests and spots are limited, it is important to offer several forms of therapy. Two other options are sports and literature interventions. These two interventions also aim to improve the well-being and self-esteem of inmates and support their rehabilitation.

The prescribed structure of the interventions can help inmates bring regularity to their daily prison routine. The set times structure the daily routine. Even on days when there are no sessions, sports activities can be carried out or planned, as can reading literature. This creates a certain sense of purpose and meaning in getting through the day in prison. Group dynamics in particular can improve mental health and psychological well-being (Billington et al., 2016, pp. 236–239).

Sports-based interventions have a positive impact not only on mental well-being, but also on physical well-being. Sports interventions often consist of group sports. This promotes integration into social networks and prepares participants well for resocialization.

Increasing physical fitness can also strengthen well-being in one's own body and thus promote self-awareness (Woods et al., 2017, pp. 56–60).

Literature intervention, also known as shared reading, aims to promote mental processes. This is intended to better activate memory processes and improve understanding of one's own thoughts and those of others (Billington et al., 2016, p. 238). Working through challenging literature together also promotes the emotional processing of experiences. This allows participants to share their own experiences and relate them to what they have read. This strengthens appreciation and acceptance of one's own feelings as well as those of one's social environment (Billington, 2011, pp. 72–73).

Both types of intervention are helpful in their own way. Nevertheless, music therapy has the advantage of being a mixture of physical participation and mental effort: making music oneself promotes emotional expressiveness and social interaction. In addition, no physical or mental prerequisites are necessary. Thus, the focus of the current thesis is music therapy. In Section 4, I will discuss music therapy in relation to the interventions mentioned here.

1.5 Aim of the thesis

The aim of this paper is to provide an overview of music therapy in prisons. In particular, it will examine the advantages of this form of therapy and its effects on participants. In addition, the most important approaches and potential limitations of music therapy in the prison system will be examined.

2. Methodology

This paper is based on a selection of specific studies dealing with the application of music therapy in correctional facilities. In order to present these studies appropriately, they are presented in a systematic review. The methods used in the literature search and the inclusion and exclusion criteria for the individual studies are outlined in the following. The analysis of the remaining studies enables the presentation and discussion of the research results.

2.1 Search strategy and databases

One of the keywords “music”, “singing”, and “choir” was systematically combined with the keyword “prison”. Following this search, additional searches were conducted excluding the keyword “prison”, with a combination of one of the keywords “music”, “singing”, and “choir” and one of the keywords “prisoner”, “prisoners”, “inmate”, “inmates”, offender”, “offenders”, “incarcerated”, and “correctional”.

These keywords were used to search the Google Scholar, PubMed, ProQuest, and JSTOR databases. A total of 323 papers were found, of which 250 remained after duplicates were removed. Keyword searches took place between February 24, 2025, and March 7, 2025.

One of the first things to note is the wide variety of vocabulary used in titles to refer to studies on the outcomes of music-based programs in correctional facilities.

2.2 Study selection process

The first filtering was based on the titles and on the following criteria: All papers on inmates in psychiatric institutions or undergoing psychiatric treatment, on prisoners of war, on former inmates undergoing resocialization, papers that consider music interventions which also contained other non-musical elements, that deal with cultural contexts and reviews were excluded.

Figure 1 shows a histogram of the collected. Based on this histogram, I narrowed down the time period of the studies under consideration in order to examine the most recent results and exclude individual studies from previous years.

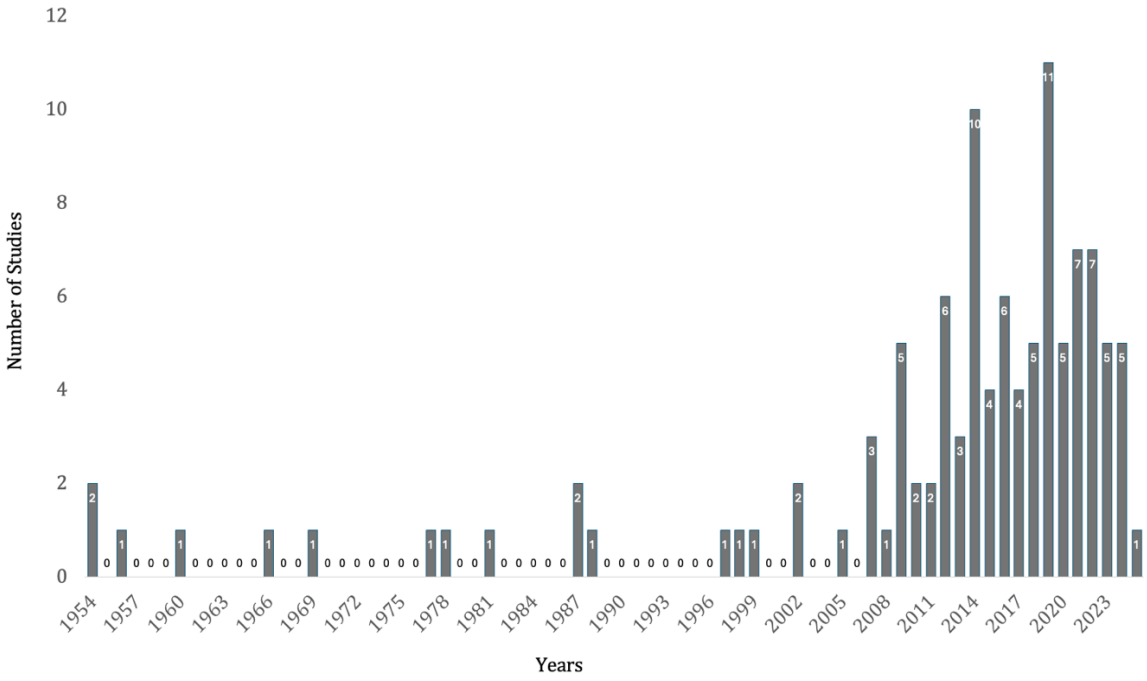

Figure 1. *Number of studies of music therapy in prison per years.*

Due to the many large gaps in the years up to 1996, it was decided to only include studies from 1997 onwards in this systematic review. This resulted in a total of 98 studies.

The next filtering step was based on the abstracts. These were read carefully and the studies were again sorted according to the criteria above. After this filtering process, 49 studies remained. One study could not be included due to lack of access. After reading the full texts, the total number of included paper was finally reduced to 46 studies.

2.3 Quality assessment of the studies

There are various approaches to assessing the quality of the studies considered. Since there are only a few quantitative studies and many qualitative studies on music therapy in prisons, the Mixed-Methods Appraisal Tool (MMAT) (Quan Nha Hong et al., 2018) is well suited for this purpose. It allows studies to be divided into five categories: “randomized controlled trials, non-randomized studies, quantitative descriptive studies,

qualitative research, and mixed methods studies" (Quan Nha Hong et al., 2018, p. 2). For each category, there are five questions that must be answered with "yes," "no," or "cannot tell" for each study. These questions vary depending on the type of study. Based on the results of these five questions, a conclusion can then be drawn about the quality of the study. (Quan Nha Hong et al., 2018, pp. 2–7)

On this basis, all 46 studies included in this systematic review were examined and evaluated.

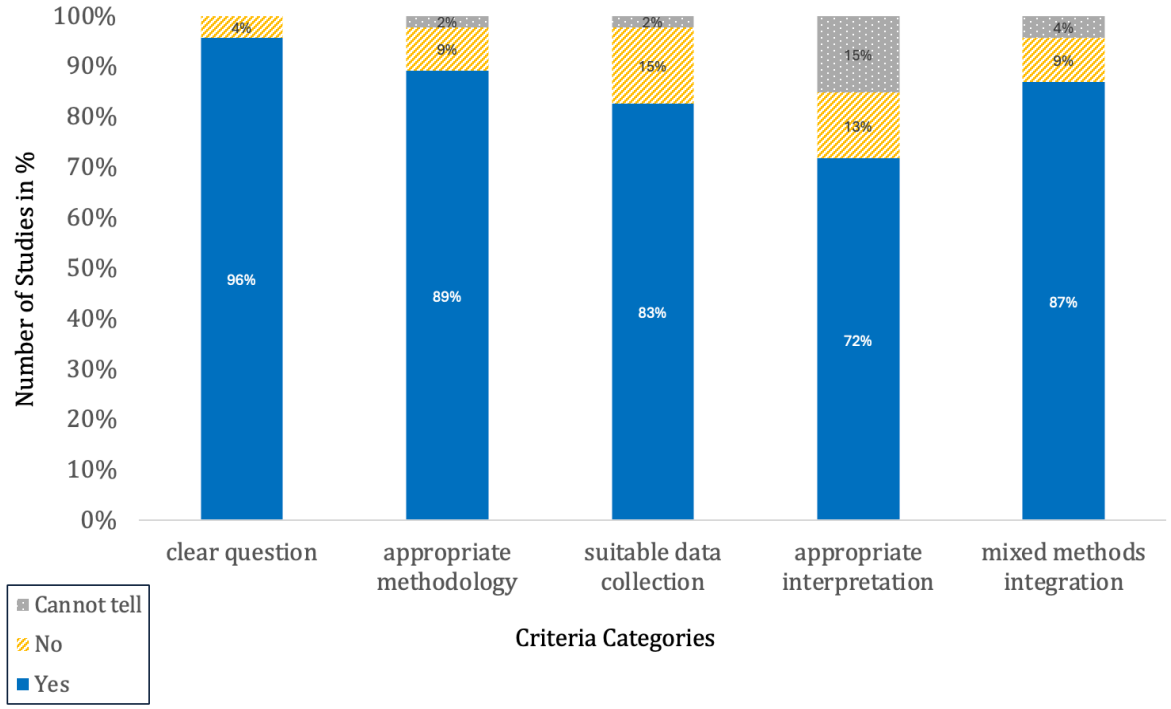

Figure 2. *Quality assessment of the used studies according to MMAT* (Quan Nha Hong et al., 2018, pp. 2–7).

The majority of studies meet the criterias according to MMAT to a high degree. Particularly convincing are those studies that were conducted on an ethnographic or grounded theoretical basis. Some studies are characterized by methodological rigor, theoretical grounding, and a careful linking of data and interpretation. These studies make a nuanced contribution to the analysis of the psychosocial effects of music in the prison context.

Studies with participatory or transformative approaches are also convincing due to their proximity to practice and the involvement of participants as co-creators of the research

process. Their methodological coherence is evident in the consistent linking of research design, data collection, and analysis.

A few studies, especially reflective experience reports, provide interesting insights into music education practice in the prison system, but do not meet the standards of systematic qualitative research, as they lack an explicit methodological framework, a systematic approach to data collection, and transparent evaluation.

Overall, it can be said that the majority of studies demonstrate high methodological quality in the field of qualitative research. In most cases, the research designs are clearly justified, methodologically diverse, and closely interlinked with the research questions. It is particularly positive that many of the more recent studies critically reflect on the position of the researchers, contextual conditions, and ethical aspects in addition to data evaluation.

2.4 Data analysis and synthesis

In the remaining 46 studies, the variables “sex/gender,” “characteristics,” “sample size,” “age,” “duration of intervention,” “frequency of sessions,” “number of sessions over all”, “location,” “randomization,” “outcome variables,” “validated constructs,” and “findings” were analyzed, as far as these were documented in the papers. This overview made it possible to identify initial similarities and differences. In addition, the studies could be classified according to their suitability for qualitative or quantitative summary. Since there are only a small number of studies with quantitatively collected data, the main focus is on the qualitative summary of the results. An examination was carried out to determine whether the quantitative data support or disprove the results of the qualitative studies.

3. Results

The studies considered include both quantitative and qualitative research that reflects different methodological approaches, target groups, and institutional frameworks. The aim of this research project is to compile the evidence available to date on this topic and to identify key mechanisms of action and potential limitations of music therapy in the prison system.

3.1 Characteristics of the studies

As mentioned before, the studies considered can be classified into four different quality categories. Thirty-four studies fall into the "qualitative" category, which Creswell & Creswell described as "an approach for exploring and understanding the meaning individuals or group ascribe to a social human problem. The process of research involves emerging questions and procedures, data typically collected in the participant's setting, data analysis inductively building form particulars to general themes, and the researcher making interpretations for the meaning of the data" (Creswell & Creswell, 2017, p. 3). Four studies belong to the "mixed methods" category, which is a combination of qualitative and quantitative methods. Clark defined this method as research studies, which "involve the synergistic combination of different aspects of quantitative and qualitative research including the different perspectives, intents, research questions, data sources, analytic techniques, and interpretations associated with these two approaches" (Plano Clark, 2017, p. 1). Two studies fall into the "quantitative non-randomized" category, which is described as any quantitative method like an intervention or the studying of other exposures that are not randomized (Quan Nha Hong et al., 2018, p. 5). Six studies are "quantitative randomized", which is defined as "a clinical study in which individual participants are allocated to intervention or control groups by randomization (intervention assigned by researchers)" (Quan Nha Hong et al., 2018, p. 4). This already provides initial insight into the structure of the studies. Figure 3 shows the detailed questions of the analysis of the studies classified according to the mixed methods appraisal tool.

Table 1. *Questions of the Mixed Methods Appraisal Tool* (Quan Nha Hong et al., 2018, pp. 3–7).

	Questions	Yes	No	Cannot tell
Qualitative Research (QR)	Is the qualitative approach appropriate to answer the research question?	33	1	0
QR	Are the qualitative date collection methods adequate to address the research question?	30	4	0
QR	Are the findings adequately derived from the data?	32	2	0
QR	Is the interpretation of the results sufficiently substantiated by date?	31	3	0
QR	Is the coherence between qualitative data sources, collection, analysis and interpretation?	31	3	0
Mixed Methods Studies (MMS)	Is there an adequate rationale for using a mixed methods design to address the research question?	4	0	0
MMS	Are the different components of the study effectively integrated to answer the research question?	4	0	0
MMS	Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	4	0	0
MMS	Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	0	0	4
MMS	Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?	4	0	0
Non-randomized Studies (NRS)	Are the participants representative of the target population?	1	1	0
NRS	Are measurements appropriate regarding both the outcome and intervention (or exposure)?	2	0	0
NRS	Are there complete outcome data?	1	1	0
NRS	Are the confounders accounted for in the design and analysis?	0	2	0
NRS	During the study period, is the intervention administered (or exposure occurred) as intended?	1	0	1
Randomized Studies (RS)	Is randomization appropriately performed?	6	0	0
RS	Are the groups comparable at baseline?	5	0	1
RS	Are there complete outcome data?	1	4	1
RS	Are outcome assessors blinded to the intervention provided?	2	1	3
RS	Did the participants adhere to the assigned intervention?	4	1	1

Twenty-seven studies were conducted in England or the USA. This suggests that most research is currently being carried out in these countries. Nevertheless, it should be noted that studies have been conducted worldwide, which means that the different prison regulations in each country also play a role in the study results. However, this paper cannot address the various concepts of the penal system.

In addition, the studies had different approaches to the various types of therapy. The most frequent types of therapy used were the classical type of music therapy with 13 studies and music education with 10 studies. The other forms of music intervention are based on joint performance of gamelan or choir music.

The duration of music therapy varied greatly. The shortest study lasted one week, while the longest lasted six years. Another decisive factor is the number of sessions. These range from four sessions to over 900 sessions. This large difference can be attributed to the fact that some studies have chosen a short, intensive program, while others are investigating a long-term program.

3.2 Characteristics of the participants

Since most prisoners worldwide are male (Association for the Prevention of Torture (APT), 2024, p. 14), it stands to reason that there are also more studies with male participants. This is also reflected in these studies. Twenty-seven studies were conducted with male or male identifying inmates, nine studies with female or female identifying inmates, and eight studies with inmates of either sex or gender. In the remaining three studies, the sex or gender of the participants was not specified. The total number of participants included in the studies under consideration was 1742. Twenty-three studies were conducted in adult prisons and therefore cover a wide age range. However, there are six studies that work with very young offenders. The age of participants therefore ranges from 10 to 75 years. In 19 studies age is only described in broad terms like "adults" or “juvenile".

Figure 3 clearly shows how much the age ranges vary between the individual studies. Precise age data is available for 13 studies. These cover ranges between ten and 54 years

of age. This is because prison inmates are not necessarily housed according to age groups, although this also varies from prison to prison.

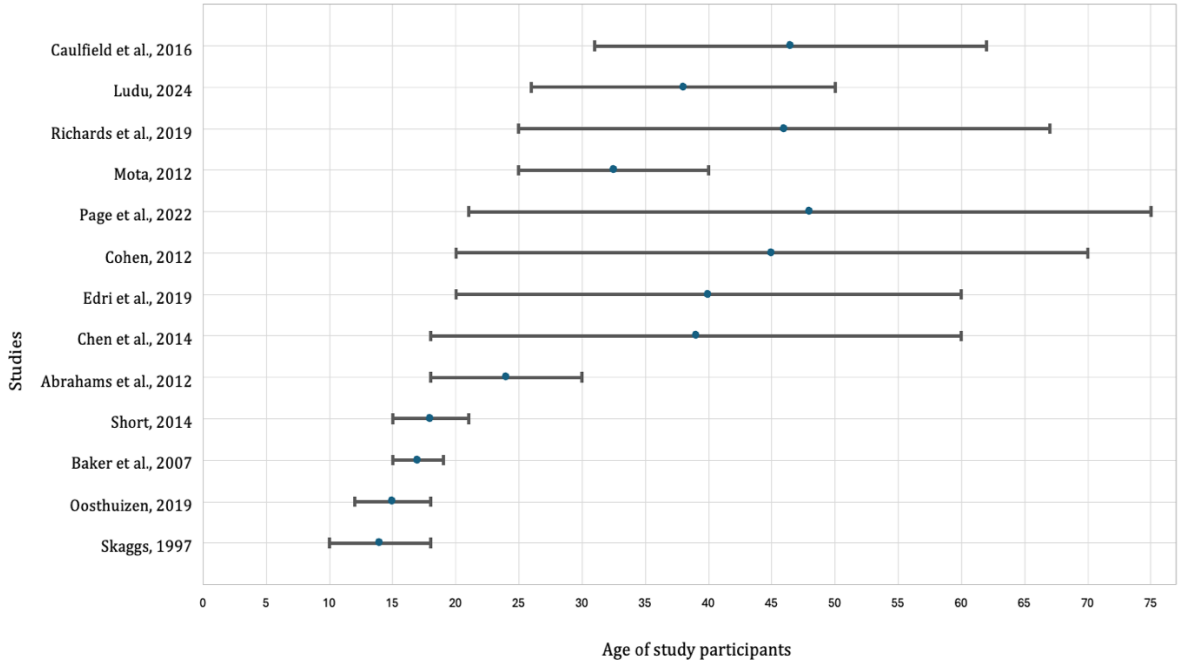

Figure 3. *Age range of study participants.*

3.3 Reported effects of music therapy

The outcome variables of the studies consulted can mostly be assigned to specific subject areas. Network analysis was used to show more precisely how many of the studies deal with a particular topic and which key outcomes are frequently addressed together. In the 46 studies included in this systematic review, five subject groups were identified in this way, as shown in Figure 4.

Twenty-seven studies can be assigned to the group marked in purple. The outcomes of these studies can be described as “psychosocial function” and the studies primarily present results relating to the mental and personal development of inmates.
The “Interpersonal development” group, marked in blue, includes 18 studies. These studies record changes in social interaction and social skills.

Fourteen studies deal with topics related to “Personal rehabilitation", marked in light green. These studies focus on topics related to personal development in connection with the possibility of rehabilitation and the recidivism rate of inmates.

The influence of mental health should not be underestimated in any of the groups. Although seven studies, marked in orange, in the “mental health” category focus exclusively on the psychological development and improvement of inmates' mental state.

The smallest group, marked in dark green, with three studies on the topic of “sense of community,” primarily refers to the development of inmates with regard to their integration into society through music therapy sessions.

Some studies are represented in several groups.

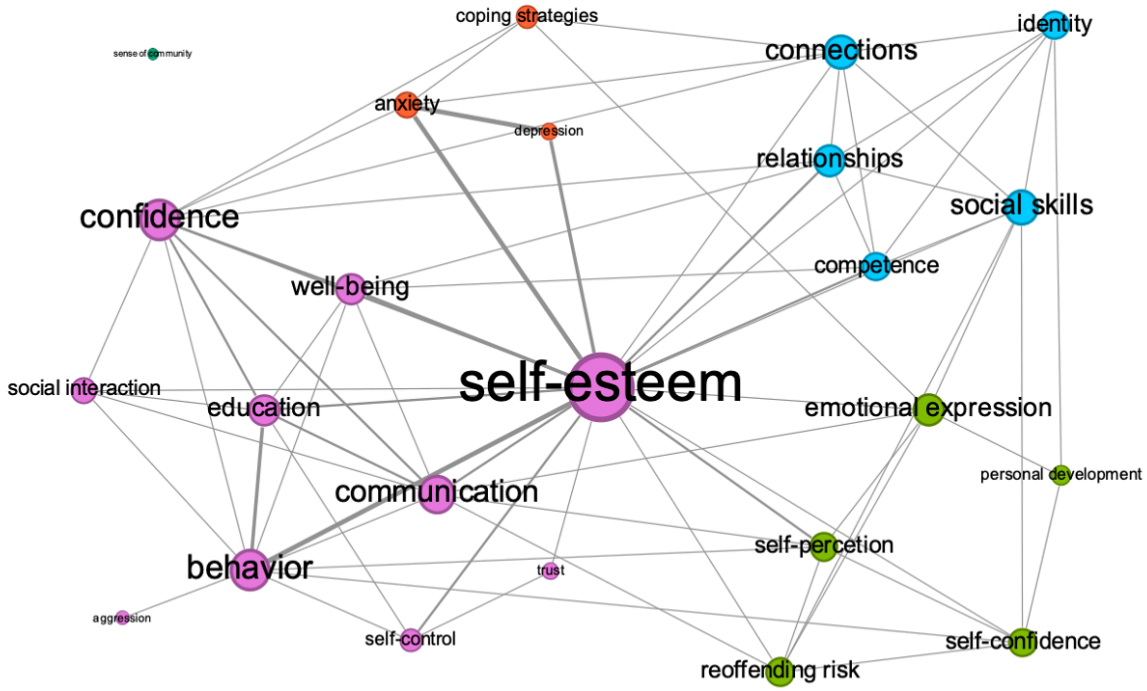

Figure 4. *Presentation of study results through network analysis.*

3.3.1 Psychosocial function

Studies on music therapy in prisons have examined its effects on inmates' psychosocial functions, including self-esteem, behavior, and confidence. Studies are grouped according to their type of music therapy.

3.3.1.1 Group music therapy

Rio and Tenney (2002) reported enhanced social interaction, self-esteem, and self-expression. After 26 sessions of group music therapy, participants experienced emotional release, trust-building, and improved interpersonal skills (Rio & Tenney, 2002, p. 96). Betts (2020) also found that music courses in group settings improved mood, motivation, and social engagement, while encouraging self-reflection, positive communication, and the development of prosocial relationships (Betts, 2020, pp. 57–74) The study by Parmar and Payal Dhanwani (2020) showed that group music interventions may buffer against hostility and encourage positive behavior (Parmar & Payal Dhanwani, 2020, p. 40). Group music practices also served as a foundation for developing trust, empathy, and abstaining from crime, even after inmates' time in prison, according to Page et al. (2022) (Page et al., 2022, pp. 7–12). Studies by Chen et al. (2014, 2016) and Chen (2014) all reported similar outcomes as improving self-esteem and emotional well-being (X. J. Chen et al., 2014, pp. 234–236) as well as enhanced social functioning (X. J. Chen, 2014, pp. 28–29). These studies showed that ten to 20 sessions also reduced anxiety and depression (X.-J. Chen et al., 2016, pp. 1071–1076). Leith (2014) reported music therapy on female prisoners increased self-confidence and self-efficacy after eight to 52 sessions (Leith, 2014, pp. 87–132).

3.3.1.2 Choirs

According to Silber (2005), participating in prison choirs enhances self-control, patience, trust, and cooperation. Thirty-five sessions provided a safe space for the participants and reduced the risk of reoffending (Silber, 2005, pp. 258–268). Cohen's (2009) study also showed that choir participation improved emotional stability, sociability, and self-esteem. Nine sessions emphasized feelings of self-acceptance and hope (Cohen, 2009, pp. 56–59). Her follow-up study (2019) described strengthened self-worth, family relationships, and prosocial identity after 12 sessions (Cohen, 2019, pp. 110–115). Choral programs have also been shown to reduce aggression and antisocial behavior, as reported in the Ludus study (2024). Eight sessions helped improve impulse control, social harmony, and emotional balance (Ludu, 2024, pp. 99–100).

3.3.1.3 Rap and songwriting

Gains in self-confidence, creativity, and teamwork were reported after 12 sessions of rap and songwriting by Baker and Homan (2007) and Richards et al. (2019) (Baker & Homan, 2007, pp. 468–471). These music activities also promoted self-expression, emotional regulation, and connection with others after five sessions (Richards et al., 2019, pp. 483–486). Rap lyric-writing also offered participants to explore emotional truth and articulate personal experiences as Short (2014) reported (Short, 2014, pp. 27–33). Waller (2020) revealed that music practices were used to manage emotional strain and foster social stability throughout the life in prison (Waller, 2020, pp. 73–125).

3.3.1.4 Gamelan music

A frequently used method in music therapy in prison is the use of gamelan music, which Loth (2014) describes as followed:

> "Gamelan is a generic term to describe an ensemble of instruments on which the traditional music of Indonesia is played. […] A gamelan ensemble can consist of between about 5 and 25 instruments and players. The instruments are tuned to four, five or seven tone scales, and are frequently elaborately carved and painted, making them very striking to look at." (Loth, 2014, p. 1).

Wilson et al. (2009) reported that these kinds of interventions promoted emotional well-being, social communication and improved confidence and motivation after seven session (Wilson et al., 2009, pp. 29–31). Mendonca (2010) also conducted a study with gamelan music which showed improvements in self-confidence, social skills and interpersonal functioning after seven sessions (Mendonca, 2010, pp. 299–303). The studies by Henley (2012) and Caulfield et al. (2016) also described encouraged engagement with education and self-development (Henley, 2012, pp. 13–30) (Caulfield et al., 2016, pp. 403–411).

3.3.1.5 Music education

Music education is a widely used method in prison. Studies by Anderson (2012) and Lively and Watt (2014) showed that learning about music and practicing it enhanced self-esteem and emotional regulation (Anderson, 2012, pp. 16–34). After four to eight sessions stress and anxiety were also reduced (Lively & Watt, 2014, pp. 29–31). The need to practice newly learned musical skills led to more self-discipline, purpose and help as Hamilton

(2024) reported (Hamilton, 2014, pp. 13–15). Performance-based music therapy also cultivated courage, trust and confidence for the participants as the study by O'Grady et al. (2015) showed (O'Grady et al., 2015, pp. 132–136). Kyprianides and Easterbrook (2020) also described cooperative music-making as promoting higher group identification and autonomy (Kyprianides & Easterbrook, 2020, pp. 537–542).

3.3.2 Interpersonal development

Eighteen studies have investigated the effects of music therapy in prisons, primarily focusing on inmates' interpersonal development. Studies are grouped according to their type of music therapy. Skaggs (1997) described music therapy as a means of healing emotional wounds and offending behaviors. At least 104 sessions helped participants express their feelings and strengthen their social skills (Skaggs, 1997, pp. 74–76).

3.3.2.1 Group music therapy

Mendonca (2010) reported that participants experienced improved self-confidence, enhanced social skills, and reduced reoffending rates after an intensive week of seven therapy sessions (Mendonca, 2010, pp. 299–303). Also, Henley (2012) observed significant personal and social growth through musical participation. After seven sessions, the inmates' individual agency increased, and strong social bonds emerged (Henley, 2012, pp. 13–30). In comparison to talk-based groups, music interventions showed improvements in executive function scores after eight sessions, according to Ellis (2014) (Ellis, 2014, pp. 46–53). Hjørnevik and Waage (2019) reported positive developments in emotion expression and identity formation. Fifty-three sessions had the potential to reshape the social climate in prison (Hjørnevik & Waage, 2019, pp. 459–466). Later, Hjørnevik (2022) explored how 60 sessions of musical participation facilitated identity construction and social belonging within an incarcerated context (Hjørnevik, 2022, pp. 273–285). Music therapy with more participants increased group identification, psychological need satisfaction, and well-being. Kyprianides and Easterbrook (2020) found these results after 32 sessions (Kyprianides & Easterbrook, 2020, pp. 537–542). Homme (2015) described moments of freedom, motivation, and emotional release experienced through musical activities. Sixty sessions provided a sense of presence and vitality, offering a brief escape through self-expression (Homme, 2015, pp. 39–61). Edri and Bensimon (2019) discovered that music can foster either closeness or conflict among

inmates. Music therapy can influence emotional and social dynamics (Edri & Bensimon, 2019, pp. 637–643). According to Oosthuizen (2019), group music therapy enhances emotional growth, empathy, and social development after twelve sessions (Oosthuizen, 2019, pp. 16–23).

3.3.2.2 Choirs

According to Cohen (2012), participating in a choir enhances inmates' social competence. After twelve sessions, participants felt more respected and connected (Cohen, 2012, pp. 50–51). Later, in 2019, Cohen described choir participation as promoting self-esteem, social cohesion, and reintegration. After twelve sessions and performances, the inmates felt more like returning citizens (Cohen, 2019, pp. 110–115).

3.3.2.3 Rap and songwriting

According to Richards (2017 & 2019), rap-based interventions foster self-discovery and affirm identity (Richards, 2017, pp. 43–52). After five sessions, anxiety was reduced, emotion regulation was supported, and self-identity was strengthened (Richards et al., 2019, pp. 483–486).

3.3.2.4 Music education and performance

As Twani (2011) described, music education and performances encouraged self-reflection, life skills, and critical consciousness among the participants. This 52-session intervention led to musical and social competencies (Twani, 2011, pp. 235–242). Mota (2012) also reported greater self-awareness and identity reconstruction after 39 sessions of music-making and performances (Mota, 2012, pp. 162–165). According to Page et al. (2022), performing and actively making music strengthens confidence, health, and relationships (Page et al., 2022, pp. 7–12). In a study by Doxat-Pratt (2021), participants described how musical communities improved their daily lives and transformed their perspectives upon release (Doxat-Pratt, 2018, pp. 293–300).

3.3.3 Personal rehabilitation

Studies have demonstrated the positive effects of music therapy on inmates' personal rehabilitation. This therapy is primarily promoted through social interaction. Studies

have focused on outcomes such as growth in self-perception, self-confidence, personal development, emotional expression, and reduced risk of reoffending. Studies are grouped according to their type of music therapy. Cohen (2007) discussed the positive effects of music-making on emotional expression and transformative personal development (Cohen, 2007, pp. 66–69).

3.3.3.1 Group music therapy

Baker and Homan (2007) reported a reduced risk of reoffending after 12 sessions of collaborative music-making. Their findings suggest that participation enhances self-confidence, emotional expression, and personal development (Baker & Homan, 2007, pp. 468–471). Mendonca (2010) also investigated broader rehabilitative outcomes of music therapy in prisons. After seven sessions, participants experienced positive emotional regulation (Mendonca, 2010, pp. 299–303). Just like Baker and Homan's study, Richards's (2017) study was based on rap and group music-making. After five sessions, participants experienced self-discovery and personal affirmation through creative expression (Richards, 2017, pp. 43–52). Oosthuizen (2019) reported that 12 sessions of group music therapy promoted adaptive emotional regulation and strengthened self-identity (Oosthuizen, 2019, pp. 16–23). After 60 group sessions in Hjørnevik's (2022) study, the participants began developing a sense of musicianship, which empowered the inmates to actively work on their personal growth (Hjørnevik, 2022, pp. 273–285). Hjørnevik and Waage (2019) created musical emotion zones in fifty-three sessions, where inmates learned to express vulnerability and foster intrapersonal balance (Hjørnevik & Waage, 2019, pp. 459–466). In Betts's (2020) study, participants developed positive self-evaluations and autonomy-supportive relationships, which aid personal and emotional rehabilitation (Betts, 2020, pp. 57–74). A follow-up study by Gold et al. (2021) showed that engagement in music therapy nurtures reflection and discipline. Over 600 sessions contributed to positive personal development (Gold et al., 2021, pp. 548–554).

3.3.3.2 Individual music therapy

A study by Huckel (2009) showed that, after 53 sessions of individual music therapy, participants experienced increased emotional awareness and the capacity to confront difficult feelings (Huckel, 2009, pp. 340–347). During 39 sessions of individual music therapy, Mota (2012) discovered that autobiographical reflection promotes emotional processing (Mota, 2012, pp. 162–165).

3.3.3.3 Music therapy with female inmates

Leith (2014) reports that eight to 52 sessions of music therapy with female prison inmates increased self-esteem, self-efficacy, and confidence while decreasing self-harm and negative behavior (Leith, 2014, pp. 87–132). Odell-Miller (2021) reported stronger self-awareness and emotional regulation in a women's prison through music therapy sessions. The sessions helped the women envision positive life changes (Odell-Miller et al., 2021, pp. 21–31).

3.3.3.4 Music performance

Doxat-Pratt (2018) reported that performing music has a positive effect on emotional release and sense of achievement. Sixty-one sessions encouraged participants and enhanced their motivation (Doxat-Pratt, 2018, pp. 28–31).

3.3.4 Mental health

Studies which have investigated the effects of music therapy on prison inmates' mental health have primarily focused on outcomes such as improvements in level of anxiety or depression as well as reduced stress. Studies are grouped according to their type of music therapy. Lively and Watt reported especially reduced stress and anxiety, enhanced mood and improved self-esteem among the participants after four to eight sessions (Lively & Watt, 2014, pp. 29–31).

3.3.4.1 Group music therapy

Chen et al. confirmed the positive effect of music therapy on mental health issues such as anxiety disorders and depression by feedback from staff and systematic evaluations. Ten to 20 sessions were held over ten weeks and recorded in three studies in 2014 and 2016 (X.-J. Chen et al., 2016, pp. 1071–1076) (X. J. Chen, 2014, pp. 28–29). In addition to reducing anxiety and depression symptoms, music therapy also contributes significantly to increasing self-esteem. These effects intensify the more sessions take place. Younger inmates respond even better to it (X. J. Chen et al., 2014, pp. 234–236). Even after only four sessions of intervention, a reduction in anxiety levels was observed ($d = 0.33$, $p = .025$) as Gold et al. reported in 2014 (Gold et al., 2014, pp. 1527–1532). Nevertheless,

additional factors such as the length of imprisonment or pre-existing mental health issues must be taken into consideration.

3.3.4.2 Rap and songwriting

As Richards et al. reported, group dynamics that develop during rap-based interventions also contribute to mental health (Richards et al., 2019, pp. 483–486). In five sessions they can learn coping strategies for dealing with stress and isolation and learn how to deal with group dynamics (Richards, 2017, pp. 43–52).

These strategies not only improve the mental health of inmates in the short term. They also offer support and guidance for managing one's own mental health. In addition, they prepare inmates for reintegration into society.

3.3.5 Sense of community

Studies exploring the impact of collaborative music-making between inmates and volunteers have highlighted the outcomes such as personal growth and the fostering of a sense of community. Cohen reported that both inmates and volunteers increased empathy and reduced stereotypes after 26 sessions together (Cohen, 2007, pp. 66–69).

3.3.5.1 Choirs

Abrahams et al. found that inmates experienced an increased sense of connection and humanization through music's role as a medium between self-perception and external perception. Abrahams et al. described the positive effects of choirs on building community and fostering self-expression among inmates (Abrahams et al., 2012, pp. 70–72).

3.3.5.2 Songwriting

Lucas reported a particularly positive effect of collective songwriting on female inmates. Over the course of 365 sessions spanning seven years, it was demonstrated that personal perspectives are set aside in favor of what strengthens collective identity and promotes creative self-reflection (Lucas, 2013, pp. 153–156).

It can therefore be said that music therapy can also strengthen social cohesion and integration into a community. The focus is no longer solely on personal views and feelings, but also on the social environment and its emotional states.

3.4 Key findings

In summary, music therapy shows consistently positive effects on inmates' psychosocial, interpersonal, rehabilitate, and mental domains. In every kind of setting, participants developed better self-esteem, emotional stability and self-awareness which is especially helpful for the reintegration in society after their time in prison.

Group-based interventions specifically improve communication, cooperation, and empathy. It also provides a safe space for inmates to talk about their emotions and build patience and trust with one another.

Music therapy also supported individual rehabilitation. It was proven to reduce anxiety, depression, and stress while it simultaneously enhanced mood and psychological well-being. Creating social bonds through music promotes empathy between inmates, staff, and volunteers. Women in particular improved self-regulation and personal growth through music therapy.

Overall, music intervention functions as a multidimensional rehabilitative tool. It strengthens emotional and social life in prison and prepares inmates for their life after their time beyond.

4. Discussion

As the included studies show, music therapy has positive effects. With the variety of methods available, music therapy can be tailored to individual participants and focus intensely on specific aspects. Making music promotes self-confidence and strengthens bonds with other participants. These dynamics prepare inmates for life after prison by teaching them to live together harmoniously.

4.1 Interpretation of the results

Overall, music therapy enhanced the emotional stability, self-esteem, and self-expression of inmates across all methods used. The number of sessions was found to be linked to the depth of psychosocial improvement. Longer or more intense interventions had stronger effects on self-control, trust, and balance (Gold et al., 2021, pp. 548–554). Music therapy also contributes to strengthening social skills, empathy, and interpersonal functioning, as well as inmates' personal rehabilitation, by fostering emotional expression, self-awareness, and behavioral reflection(Cohen, 2007, pp. 66–69). Music therapy displays significant benefits in alleviating anxiety, depression, and stress, improving inmates' general emotional well-being (X.-J. Chen et al., 2016, pp. 1071–1076).

Performance-based music therapy fosters confidence, purpose, and discipline in inmates. It also promotes cooperation, mutual respect, and a sense of collective agency (Page et al., 2022, pp. 7–12).

Songwriting and rap sessions, in particular, cultivate creativity, emotional expression, and genuine self-reflection (Richards et al., 2019, pp. 43–52). Participants learn to process their personal experiences and develop coping mechanisms (Baker & Homan, 2007, pp. 468–471).

Participating in music therapy in a choral setting has been shown to develop patience, empathy, and social regulation. It also reduces aggression and antisocial behaviour (Silber, 2005, pp. 258–268). According to the mentioned studies, choral settings enhance inmates' feelings of inclusion and social cohesion. These settings contribute to their potential for reintegration as well (Cohen, 2019, pp. 110–115).

Most of the interventions are group-based. This setting promoted mutual trust, prosocial communication, and cooperative behaviour. Groups fostered constructive social climates where participants could safely practice social behaviours and emotional communication (Parmar & Payal Dhanwani, 2020, p. 40). Although there are only a few long-term studies, it can be said that long, ongoing interventions promote identity formation and a sense of belonging to the group (Lucas, 2013, pp. 153–156). Individual sessions, on the other hand, allow for deeper introspection and confrontation with difficult emotions due to their intense nature (Huckel, 2009, pp. 340–347). Group music therapy reduces social barriers, encourages empathy, and enhances coping skills and emotional resilience. It also promotes mutual understanding and community building among inmates and facilitators.

In general, music therapy supports the reconstruction of self-identity, particularly in group settings through creative self-expression. It provides a relational framework through shared experiences, leading participants to develop trust and social awareness. Music therapy also functions as a complementary mental health intervention, equipping inmates with tools to manage their mental health after prison.

However, it must also be said that inmates only have a limited range of activities to choose from. They can select the ones that appeal to them most from these options. It can therefore be assumed that most participants already know that they enjoy music. This also influences the results of studies. In addition, participants are excluded from interventions if they do not behave correctly. This requires a certain basic attitude. As Rohrer (2024) notes, excluding participants after treatment assignment creates selection and posttreatment bias, as outcomes may reflect compliance-related traits rather than the intervention itself. This compromises group comparability and weakens internal validity by obscuring the intervention's true causal effect (Rohrer, 2024, pp. 6–8).

Other commonly offered interventions are sports- or literature-based. As mentioned at the beginning of this paper, these activities also have a positive effect on participating inmates. In order to make a comparison, five studies on sports and literature interventions each were also considered. These studies were also searched for using the keywords "literature intervention prison" and "sports intervention prison" and sorted according to the same criteria as mentioned above for studies on music therapy in prisons (2.2). As shown in Figure 5, the various forms of intervention are widely used around the world. The studies considered here cover a broad selection of countries. However, it is

apparent that music therapy has been researched even less in Europe than, for example, sports interventions.

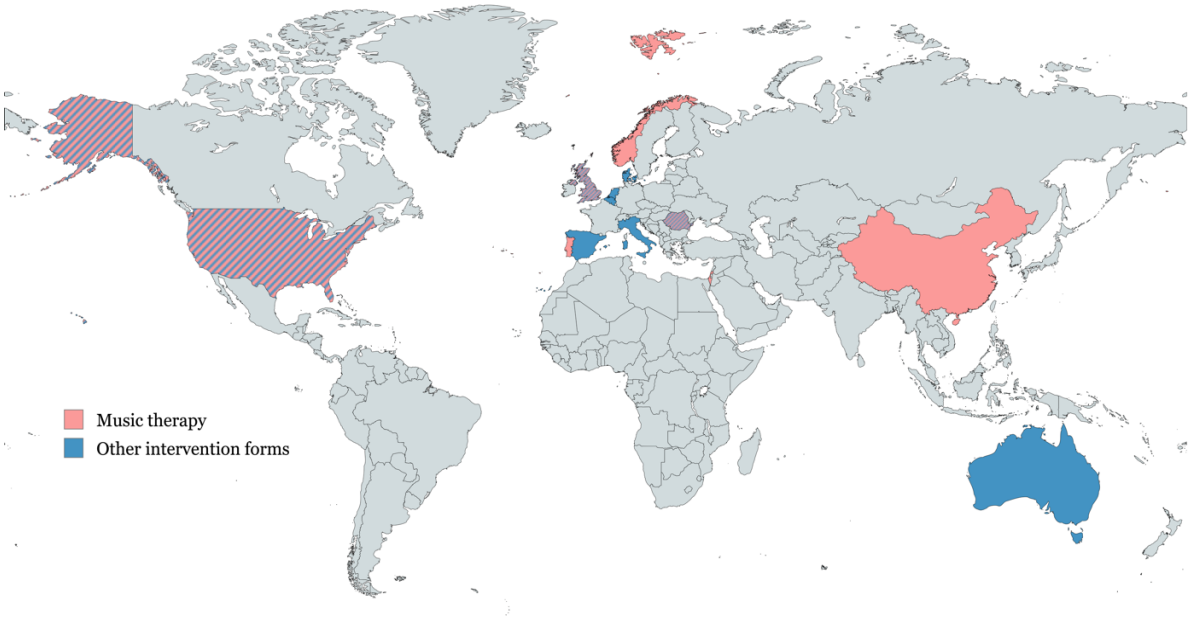

Figure 5. *World map of studies on music therapy, sports and literature interventions.*

Billington (2011, 2016) describes shared reading groups in British prisons. It is reported that mental well-being increases, and greater self-esteem and social connectedness can be observed (Billington, 2011, pp. 71–79). Memory and group integration are also strengthened (Billington et al., 2016, pp. 236–239). Field and Nelken (2010) analyze discourses primarily with regard to their general impact on inmates without defined goals (Field & Nelken, 2010, pp. 297–303). Sweeney's study (2008) focuses on how women use reading to process their biography, trauma, and identity. There are no concrete improvements in the outcomes mentioned (Sweeney, 2008, pp. 313–323). The largest study considered here which includes 464 participants and lasts thirty-one months, by Houchins et al. (2018), shows rather small improvements in the well-being of participants. These are mainly attributable to improved reading comprehension and mental development (Houchins et al., 2018).

Devís-Devís et al. (2012) describe EU-wide objectives and perceived functions of sports interventions with regard to the health and rehabilitation of prisoners (Devís-Devís et al., 2012, pp. 26–34). Meek and Lewis (2012) also focus primarily on physical health, but mental health and relapse prevention are also positively emphasized (Meek & Lewis,

2012, pp. 121–123). The ten-week rugby program by Williams et al. (2015) shows improvements in aggression and pro-crime attitudes. Effects on self-esteem are not mentioned (Williams et al., 2015, pp. 56–59). Gallant et al. (2015) examines four different sports programs with different target groups. Overall, however, they report improved health, well-being, and social interaction (Gallant et al., 2015, pp. 50–52). Woods et al. (2017) report predominantly positive results. According to their findings, sports interventions improve mood, stress management, self-esteem, and prosocial behaviour (Woods et al., 2017, p. 53).

It was found that, as with music therapy, these interventions are widely used and applied in all age groups. However, as shown in Table 2, the core results of the mentioned studies are not as clear as in the studies on music therapy. Nevertheless, it must be taken into account that only five studies each were not considered to provide a first comparison. Since the other two forms of intervention were only held in group sessions in the examined studies, an improvement in social skills was the common denominator. But it is not possible to say with certainty that there is a truly positive effect on the factors of "mental health," "social skills," and "reoffending risk," as only individual participants showed improvements.

Table 2. *Comparative overview of different types of intervention.*

	Music Therapy	**Sports Interventions**	**Literature Interventions**
Countries	USA, England, Norway, China, Israel, Romania, Portugal	Australia (Woods et al., 2017) England (Williams et al., 2015); Belgium, Denmark Spain, Romania, Netherlands (Devís-Devís et al., 2012)	USA (Sweeney, 2008); England (Billington, 2011 & 2016); Italy (Field & Nelken, 2010)
Group or Single Sessions	Both	Group Sessions	Group Sessions
Age	10-75	15 and older	12-62
Mental Health	Improvement	Some improvement	Not considered
Self-esteem	Improvement	Some improvement	Improvement
Social Skills	Improvement	Improvement	Improvement
Reoffending Risk	Improvement	Not considered	Not considered

Nevertheless, music therapy in groups can always lead to conflicts or a certain amount of tension, as the social dynamics in prisons are very complex. These points must always be taken into account when interpreting the results.

4.2 Significance of the findings in an incarcerated context

The findings highlight the considerable potential of music therapy as an intervention within correctional environments. These outcomes are especially significant in a context where emotional regulation and self-perception are often impaired due to the restrictive and stressful nature of prison life. Music therapy also serves as a socialization mechanism in a setting often characterized by isolation and distrust. Taken together, the evidence suggests that music therapy holds substantial value in correctional rehabilitation. By fostering emotional expression, trust, and social awareness, it provides inmates with constructive means of self-development within an environment otherwise limited in positive social experiences. Its combination of therapeutic depth and creative freedom positions it as a uniquely effective tool for supporting personal growth and reintegration in incarcerated populations.

The results show that the type of music therapy is not related to the outcome criteria. It cannot therefore be concluded that a specific form can be used to achieve specific results. In general, it can be said that the research question of each study provides a certain perspective through which individual results are highlighted more than others. This is not meant to be negative, but it may explain why every form of music therapy can produce the same result. Even though problems can naturally arise during music therapy sessions, it is nevertheless striking that these are only exceptions. They should not be ignored, but they represent a very small proportion of the results. This suggests that music therapy in prisons has great potential and, despite the problems, is a good addition to the rehabilitation of prisoners.

4.3 Methodological limitations

Studies conducted in prisons are subject to far more restrictions than studies conducted in other settings. Due to strict security regulations, important documentation tools are often not permitted. Researchers are therefore often faced with the challenge of compensating for these restrictions (Abbott et al., 2018, pp. 3–8). Most studies are qualitative, meaning that researchers must rely on participants' self-assessments. Since the data is collected through interviews, the results are also dependent on the participants' use of language and vocabulary (Apa et al., 2012, pp. 4–6).

Another challenge is the limited number of test subjects. The number of participants is usually determined by the prison. In addition, the setting does not allow for control groups, or only to a limited extent. Randomized studies are therefore the exception rather than the rule (Abbott et al., 2018, p. 9). One way to get around this would be to compare it with other forms of intervention, such as sports or literature. This would allow similar circumstances to be compared with different interventions. However, it would be important to ensure that the conditions in the different studies are as similar as possible. In long-term studies, the situation is further complicated by the fact that participants often change, as they can only participate in the studies or programs for the duration of their imprisonment (Lennox et al., 2022, p. 2). Most studies are therefore only conducted over a short period of time, so that long-term effects are only found in isolated cases. Comparisons between studies are thus significantly more difficult, and the results are hard to relate to others.

Studies on mental health are the most comparable, as they often use validated constructs and measures. This means that the results are standardized and can be compared with other similar studies. However, it is not always possible to collect quantitative results in prisons.

In addition, prison regulations vary from country to country. This makes it difficult to compare individual studies and means that the results cannot be easily generalized. Due to the different regulations, the information provided about participants always varies. Depending on the country, participants' personal details may be kept confidential, which makes it even more difficult to draw conclusions about other inmates.

4.4 Outlook for future research

There is undoubtedly still a considerable need for research in the field of music therapy in prisons. However, scientific work in this area repeatedly faces major challenges, as the framework conditions are severely restricted by legal and organizational constraints. Despite these obstacles, each individual study can make a valuable contribution to a better understanding of how music therapy works and how it can be implemented in practice.

It would be particularly relevant to systematically compare different music therapy approaches in order to determine their respective effects and areas of application more precisely. It would also be interesting to compare different forms of intervention within the same prison, as this would significantly improve the comparability of the results. Group dynamics and the resulting development of social skills in particular offer a good opportunity to compare the different forms of intervention. As Table 2 shows, this finding is also a frequently discussed topic in sports and literature interventions. In this context, it should be emphasized that standardized and methodologically clearly defined procedures are, whenever possible, the best basis for valid research results.

Furthermore, it is apparent that, particularly in German-speaking countries, there has been very limited scientific research on the topic of music therapy in prisons to date. Although there are a few isolated studies, these are still the exception rather than the rule. There is still considerable potential for more in-depth research in this area. It would be particularly worthwhile to take a closer look at the legally protected definition of music therapy in Austria in comparison to other parts of the German-speaking world. Such a study could provide insight into whether and to what extent the stricter regulations in Austria have an influence on the effectiveness of music therapy measures in prisons.

5. Conclusion

Music therapy has shown positive effects in all studies. One particular advantage is its flexibility, as it can be adapted to the individual needs and goals of prisoners. Its key effects include improved emotional stability, increased self-esteem, better self-control, easier expression of emotions, and more effective stress management. In addition, anxiety disorders and depression occur less frequently. Group interventions in particular promote social skills, empathy, trust, and the ability to cooperate. Furthermore, the feeling of belonging can reduce aggression and antisocial behavior. The different forms of therapy can shape individual characteristics in particular ways, but generally provide a way of dealing with challenges.

Compared to other forms of intervention such as sports or literature groups, music therapy has been shown to have a more consistent positive effect on mental well-being and the risk of relapse, in addition to improving social interaction. In literature groups, in addition to improving group cohesion, memory is particularly enhanced and biographical reflection takes place. In sports groups, physical health and the reduction of aggression are important factors.

Methodologically, studies in correctional facilities face challenges. Small sample sizes, missing or limited control groups, short durations, and high context dependency limit generalizability and make comparisons between studies difficult. The frequent limitation of standardized quantitative measurement instruments usually requires qualitative approaches in which the subjective assessments of participants are incorporated into the results. Nevertheless, there are a few quantitative studies.

Overall, the findings can be interpreted to mean that music therapy has great rehabilitative potential and is very well suited to promoting mental health, social skills, and reintegration in the prison system. Its use is beneficial for prisoners. And therefore answer the question this research was driven by.

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