

Music as a Therapeutic Agent for Mental Health: a Thematic Review of Its Psychophysiological and Emotional Functions

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ABSTRACT

Music is associated with a wide range of mental-health and well-being outcomes, but the literature often conflates ordinary music listening, structured music-based interventions and formal music therapy. This thematic review clarifies these levels of therapeutic involvement and develops a conceptual framework linking music exposure or intervention with psychophysiological, emotional, cognitive and social mechanisms and with selected clinical applications. Secondary literature was identified using the keywords music, music therapy and mental health, supplemented by reference-list searching, and analysed thematically. The review is not systematic and does not claim exhaustive coverage. Across the reviewed literature, psychophysiological evidence includes relaxation, pain-related responses, sleep-related outcomes and stress-related physiological changes, including cortisol and autonomic indicators reported in intervention studies. Emotional evidence concerns mood regulation, emotional expression, coping and anxiety or stress reduction. Cognitive evidence includes attention, arousal, information processing, memory-related functions and cognitive engagement, while social evidence concerns communication, connectedness, participation and social well-being. Clinical applications in the reviewed literature include anxiety, depression, stress-related distress, sleep-related problems and supportive care. The strength and meaning of evidence vary according to whether studies report associations, measurable physiological responses or therapeutic effects under structured intervention conditions. Outcomes may also differ by musical characteristics, familiarity, duration, delivery method, participant characteristics and intervention dosage, although these factors are inconsistently reported across the reviewed literature. Music is therefore best understood as a heterogeneous set of listening practices and interventions whose potential contribution to mental health depends on context, delivery and level of therapeutic involvement, and which should not be treated as a substitute for appropriate medical or psychological care.

Keywords: mental health; music listening; music-based intervention; music therapy; psychophysiological mechanisms; emotional regulation

INTRODUCTION

Mental health is defined by the World Health Organization (WHO, n.d. a) as “a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community”. Mental health disorders can affect individuals regardless of age, gender, race or social status and may involve significant distress, impairment in functioning or risk of self-harm. Global estimates have

demonstrated the scale of the problem: 322 million people were reported to be living with depression in 2015 (Zulkipli et al., 2023), while 970 million people were living with a mental disorder in 2019 (WHO, n.d. b). WHO (2023) subsequently reiterated that approximately one in eight people globally live with mental health conditions. These circumstances reinforce the need for effective treatment as well as supportive approaches that may improve quality of life and well-being.

Treatment for mental disorders may include medication, psychoeducation, family intervention and psychosocial rehabilitation (WHO, 2022). Pharmacological and psychological treatments remain central to clinical care, while non-pharmacological and complementary approaches have also received attention (Othman, 2012). Music is relevant within this wider landscape, but the term “music” encompasses practices with substantially different levels of therapeutic involvement. Conceptual precision is therefore necessary before evidence about music and mental health can be interpreted.

Levels of Music Involvement and Scope of the Review

This review distinguishes three levels of music involvement. Music listening refers to ordinary or self-directed engagement with recorded or live music without a formal therapeutic protocol. Music-based interventions refer to structured uses of music for a specified health, well-being or rehabilitative purpose, but the intervention may not necessarily constitute professional music therapy. Formal music therapy refers to organised therapeutic practice in which music is used within a defined therapeutic process and professional framework. The American Music Therapy Association and the National Standards Board for Therapeutic Musicians distinguish therapeutic music practices and describe the use of musical elements such as rhythm, harmony, melody and tonal colour (AMTA & NSBTM, 2017). Maintaining these distinctions is essential because evidence from everyday listening, a structured intervention and formal therapy cannot be treated as equivalent evidence of therapeutic efficacy.

The review focuses on mental-health outcomes and closely related well-being domains represented in the available literature, particularly anxiety, depression, stress-related distress, emotional regulation, coping, sleep-related outcomes, social and emotional well-being, and supportive care. Pain and physiological stress responses are considered where they illuminate psychophysiological pathways relevant to mental health. The review does not assume that every physiological or well-being outcome constitutes treatment of a mental disorder.

Conceptual Framework

The conceptual framework used in this review links the form of music exposure or intervention to four interacting mechanisms and then to reported mental-health or supportive outcomes. Musical exposure is first considered according to its level of therapeutic involvement, from self-directed listening to structured music-based intervention and formal music therapy. Its effects may then operate through psychophysiological mechanisms involving arousal, autonomic and stress regulation; emotional mechanisms involving mood, expression and affective regulation; cognitive mechanisms involving attention, memory, arousal and engagement; and social mechanisms involving communication, connectedness, belonging and participation. These pathways may contribute to outcomes such as anxiety or stress reduction, changes in depressive symptoms, improved coping, sleep-related improvement and broader well-being. The framework also recognises that outcomes may be moderated by musical characteristics, familiarity, duration, delivery method, participant characteristics and intervention dosage.

Framework component	Scope in the reviewed literature
Music exposure / intervention	Self-directed music listening; structured music-based interventions; formal music therapy
Psychophysiological mechanisms	Relaxation; autonomic and stress regulation; cortisol-related responses; heart rate, blood pressure and respiration where measured; sleep and pain-related responses

Emotional mechanisms	Mood regulation; emotional expression; affective processing; coping; anxiety and stress reduction
Cognitive mechanisms	Attention; arousal; information processing; memory-related functions; cognitive engagement
Social mechanisms	Communication; connectedness; belonging; shared musical participation; social well-being
Clinical and supportive outcomes	Anxiety; depression; stress-related distress; sleep-related problems; supportive mental-health care and quality of life
Contextual and intervention modifiers	Music type and tempo; familiarity; duration; delivery method; participant characteristics; intervention dosage

Table 1: Conceptual framework linking music exposure or intervention to mechanisms and mental-health outcomes

Method

This study employed secondary data analysis and thematic synthesis to examine the role of music in relation to mental health. Secondary data analysis involves the use and interpretation of information collected in existing sources for purposes that may differ from those of the present study (Boslaugh, 2007; Johnston, 2014). Sources were identified using the keywords music, music therapy and mental health, and reference lists of identified sources were reviewed to locate additional relevant literature. The review did not employ a database-specific systematic search protocol, a fixed search period, formal inclusion and exclusion criteria, or a PRISMA-based selection procedure. It is therefore explicitly positioned as a thematic review rather than a systematic or scoping review.

The literature was analysed thematically to identify recurring patterns in the reported functions and applications of music (Vaismoradi et al., 2016). The revised analytical framework organised the evidence into four mechanisms: psychophysiological, emotional, cognitive and social. Clinical applications were considered separately to avoid treating a mechanism, an associated outcome and a demonstrated therapeutic effect as interchangeable. Evidence was also interpreted according to the level of music involvement, namely ordinary music listening, structured music-based intervention or formal music therapy, where this distinction was identifiable from the reviewed source.

A further analytical distinction was made among three evidential levels. Associational evidence refers to relationships between music engagement and an outcome without establishing that music caused the outcome. Physiological-response evidence refers to measurable bodily or neurophysiological changes reported in relation to music exposure or intervention. Therapeutic-effect evidence refers to outcomes reported under structured therapeutic or intervention conditions. This distinction is used throughout the synthesis to prevent observational associations or isolated physiological responses from being interpreted automatically as clinical therapeutic effects.

The review also considered, where reported in the source literature, factors that may modify outcomes, including music type, tempo, familiarity, duration, delivery method, participant characteristics and intervention dosage. These characteristics were not consistently reported across all sources and could not therefore be compared quantitatively. As a limitation, the review does not provide a reproducible systematic-search record or a fixed final corpus established through systematic selection. The findings should be interpreted as a structured thematic synthesis of the literature reviewed rather than an exhaustive mapping or meta-analysis of evidence on music and mental health.

RESULTS AND DISCUSSION

The reviewed literature spans ordinary music engagement, structured music-based interventions and formal music therapy. These forms of exposure differ in purpose, intensity, delivery and evidential implications. Population studies of music engagement primarily support associations with well-being or emotional competence, whereas intervention studies can provide evidence about responses under more controlled or therapeutic conditions. The synthesis therefore organises findings by mechanism while retaining the distinction between association, physiological response and therapeutic effect.

Psychophysiological Mechanisms

Psychophysiological mechanisms concern the ways in which music exposure or intervention may relate to arousal, autonomic regulation, stress physiology, relaxation and bodily states that interact with mental well-being. The reviewed literature reports associations or intervention-related outcomes involving pain, sleep quality, tiredness and relaxation (Álvarez, 2022; Tan et al., 2020; Giordano et al., 2020; Dutta et al., 2020; Ray & Götell, 2018; Mofredj et al., 2016; Bradt et al., 2013; Guétin et al., 2009; Siedliecki & Good, 2006). These outcomes should not be treated as equivalent: some concern subjective experience, whereas others involve measurable physiological responses or outcomes under structured interventions.

Lee (2016), in a meta-analysis of 97 studies, reported effects across pain ratings, emotional distress from pain, anaesthetic and analgesic use, heart rate, blood pressure and respiration rate. These findings provide evidence that music-related responses can extend beyond self-reported emotion to physiological indicators. Stress-related pathways have also been discussed in relation to hypothalamic-pituitary-adrenal activity and cortisol (Chanda & Levitin, 2013). Khalfa et al. (2003) reported cortisol-related responses following relaxing music after psychological stress, while McKinney et al. (1997) examined mood and cortisol in guided imagery and music. Within the present framework, such findings are classified as physiological-response evidence and should not, by themselves, be equated with treatment of a mental disorder.

The available literature also indicates that psychophysiological response is unlikely to be uniform. Tempo, rhythmic properties, personality and contextual factors may shape responses (Chanda & Levitin, 2013; Olff et al., 2014). The reviewed sources do not provide sufficiently consistent reporting to establish a common optimal tempo, duration or dosage. Accordingly, the evidence supports a context-dependent relationship between musical exposure and physiological regulation rather than a single standardised effect applicable to all listeners.

Emotional Mechanisms

Emotional mechanisms include mood regulation, emotional expression, affective processing, coping and anxiety or stress reduction. Across the reviewed literature, structured music-based interventions and music therapy have been associated with reduced anxiety and support for emotional regulation and coping (Álvarez, 2022; Tan et al., 2020; Giordano et al., 2020; Dutta et al., 2020; Ray & Götell, 2018; Mofredj et al., 2016; Bradt et al., 2013; Guétin et al., 2009; Siedliecki & Good, 2006; Maratos et al., 2008). Clements-Cortés (2004) described music as facilitating emotional expression, communication, reminiscence and relaxation in a clinical context, while Perkins et al. (2020), in a meta-ethnography of 46 qualitative studies, identified emotional management, self-development and respite from problems among the ways participatory music engagement supported mental well-being.

Evidence concerning depression illustrates why intervention type and evidential level must be distinguished. Maratos et al. (2008) reviewed music therapy for depression, while Castillo-Pérez et al. (2010) compared music therapy with psychotherapy and Chu et al. (2014) examined group music therapy in older adults with dementia. Such studies concern structured therapeutic contexts and are more directly relevant to therapeutic effects than population-level associations with music engagement. Conversely, findings that people who engage in music report better emotional competence or well-being should be interpreted as associations unless the study design supports a stronger inference.

Cognitive Mechanisms

Cognitive mechanisms concern attention, memory, arousal, information processing and cognitive engagement. Music may redirect attention away from pain or distress and can form part of rehabilitation or learning processes. Fotakopoulos and Kotlia (2018) examined music accompanied rehabilitation in relation to cognitive and motor recovery after stroke, while Fujioka et al. (2012) reported changes in neuromagnetic beta-band oscillation following music-supported stroke rehabilitation. Research on auditory processing also demonstrates differentiated processing of speech and melody and simultaneous processing of vocal melody and musical background (Albouy et al., 2020; Chabin et al., 2022).

These findings support the plausibility of cognitive pathways, but they represent different forms of evidence. Neurophysiological processing does not itself demonstrate a therapeutic effect, and rehabilitation findings from specific clinical populations should not be generalised to ordinary music listening. The American Music Therapy Association has also identified memory enhancement among functions associated with music therapy (Busch, 2010), but the present thematic corpus does not support a single conclusion about the magnitude of effects on attention or memory across populations. Participant characteristics, task demands and intervention design remain important sources of variation.

Social Mechanisms

Music may also operate through social mechanisms involving connectedness, communication, belonging and participation. Perkins et al. (2020) identified social relationships as one pathway through which participatory music engagement supports mental well-being. In a study of Australian adults, Weinberg and Joseph (2017) reported better subjective well-being among people participating in shared musical activities such as singing, dancing with others or attending concerts. Theorell et al. (2014) reported relationships between musical activity and emotional competence, while Lense et al. (2020) described community participation and well-being in an integrated parent-child music class programme.

These studies primarily demonstrate associations or programme-related experiences rather than a universal therapeutic effect of social music participation. Nevertheless, they broaden the framework beyond individual listening by showing that the social organisation of musical activity can be relevant to well-being. Delivery method therefore matters: solitary listening, group participation and therapist-led activity involve different social processes and should not be treated as interchangeable forms of exposure.

Clinical Applications and Supportive Mental-Health Care

The reviewed literature includes clinical applications involving anxiety, depression, stress-related distress, dementia-related symptoms, supportive care and sleep- or relaxation-related outcomes. Bradt et al. (2013) reviewed music interventions for preoperative anxiety; Guétin et al. (2009) examined anxiety and depression in patients with Alzheimer's type dementia; Ray and Götell (2018) considered depression symptoms and well-being among nursing home residents with dementia; and Giordano et al. (2020) examined receptive music therapy for stress and well-being among clinical staff. These studies demonstrate that music has been incorporated into varied clinical or supportive contexts, but differences in populations and intervention designs limit direct comparison.

Clinical application should also be distinguished from evidence of clinical efficacy. A study may report that music is used in supportive care without establishing that it independently treats the underlying disorder. The reviewed literature generally supports music as complementary to established care rather than as a replacement for medical or psychological treatment (Roziah et al., 2020; Mohd Jailani & Roziah, 2019; Deng et al., 2009; O'Brien, 2004). Its potential value lies in symptom management, relaxation, emotional expression, coping, engagement and quality of life within an appropriate care framework.

Music Characteristics, Delivery and Intervention Dosage

The effects attributed to music cannot be separated entirely from the characteristics of the music and the

conditions under which it is delivered. The reviewed literature refers to relaxing music, rhythm and melody, guided imagery with music, receptive music therapy, group music therapy and other forms of structured or self-directed engagement. Chanda and Levitin (2013) identify tempo and contextual factors as potentially relevant to psychobiological response, while Khalfa et al. (2003) specifically examined relaxing music in relation to cortisol after stress. Group-based studies additionally indicate that delivery can incorporate social interaction as part of the intervention itself.

Familiarity, preference, duration and dosage are also conceptually important because a brief exposure, repeated listening, a multi-session programme and formal therapist-led treatment represent different levels of intervention. However, the reviewed corpus does not report these characteristics consistently enough to permit a reliable cross-study comparison or to identify an optimal dosage. The present review therefore treats music type, tempo, familiarity, duration, delivery method, participant characteristics and dosage as moderators that should be reported and analysed explicitly in future studies rather than inferring standard effects that are not supported by the available evidence.

Interpreting the Strength of Evidence

A central implication of the thematic synthesis is that claims about music and mental health should correspond to the type of evidence available. Observational or population-level relationships between music engagement and well-being demonstrate association. Changes in cortisol, heart rate, blood pressure, respiration or neurophysiological activity demonstrate physiological response under the conditions studied. Therapeutic effects require evidence from structured intervention or clinical designs capable of attributing an outcome to the intervention with greater confidence. These evidential categories overlap in the literature but should not be collapsed into a single claim that “music is therapeutic”.

This distinction also clarifies the meaning of the term therapeutic agent in the present review. It refers to the capacity of music to be incorporated into supportive or therapeutic processes through psychophysiological, emotional, cognitive and social pathways. It does not imply that ordinary music listening is equivalent to formal music therapy, that every physiological response produces a mental-health benefit, or that music independently cures mental disorders. This bounded interpretation is consistent with the heterogeneity of the reviewed evidence.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

This review is thematic rather than systematic or scoping. It did not use a database-specific reproducible search strategy, formal screening protocol, fixed search period or PRISMA procedure. It therefore cannot claim exhaustive coverage of the literature or provide pooled estimates of effect. In addition, the reviewed studies vary substantially in population, musical exposure, intervention design, outcome measurement and clinical context. These differences limit direct comparison across studies.

Future research should specify whether the exposure is ordinary music listening, a structured music-based intervention or formal music therapy and should report music type, tempo, familiarity, duration, delivery method, participant characteristics and intervention dosage. Studies should also distinguish clearly among associational outcomes, physiological responses and therapeutic effects. Greater consistency in reporting these features would permit more precise evaluation of which mechanisms operate for which populations and under which conditions.

CONCLUSION

This thematic review provides a structured framework for interpreting the relationship between music and mental health without treating all forms of music engagement as equivalent. It distinguishes ordinary music listening, structured music-based interventions and formal music therapy, and organises the reviewed evidence across psychophysiological, emotional, cognitive and social mechanisms. These pathways are represented in applications involving anxiety, depression, stress-related distress, sleep- and relaxation-related problems, coping and supportive mental-health care.

The evidence nevertheless varies in strength and meaning. Associations between music engagement and well-being, measurable physiological responses to music, and therapeutic effects observed under structured intervention conditions represent different evidential claims. Music type, tempo, familiarity, duration, delivery method, participant characteristics and dosage may further modify outcomes, but these factors are not consistently reported across the reviewed literature. Music should therefore be understood as a context-dependent complementary resource whose potential contribution to mental health depends on the form of exposure, mechanism, population and therapeutic setting. It should not be treated as a substitute for appropriate medical or psychological care.

Ethical Considerations

Ethical issues (including plagiarism, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been observed by the authors. As no primary data collection was undertaken, no additional formal ethical assessment or informed consent was required for this thematic review.

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Conflict of Interest

The authors declare no conflict of interest.

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