Vol. 1, No. 3 November 2025
MOSAIC: Multidisciplinary Observations, Studies and Integrated Contexts
https://journal.dinamikapublika.id/index.php/mosaic

TUNING INTO WELLNESS: HOW MUSIC SHAPES OUR MOOD AND BOOSTS HEALTH

Benediktus Rolando [1]

[1] Management Department, Faculty of Management and Business Science, Universitas Dinamika Bangsa,Indonesia

E-mail: [1)] benediktus@unama.ac.id

ABSTRACT

This systematic literature review explores the psychological and physiological effects of music engagement on human health and well-being. Amid growing global concerns over mental health issues such as stress, anxiety, and depression, music has emerged as a promising, non-invasive intervention. The review aims to synthesize peer-reviewed studies examining how music—both active and passive forms—modulates mood, supports recovery, and contributes to neurological and emotional regulation. Using PRISMA guidelines, 45 studies were selected based on relevance, methodological rigor, and outcome focus. Thematic analysis revealed five major domains of music's impact: physiological stress response reduction, emotional modulation, neurological activation and plasticity, clinical applications in therapy, and individual or cultural variability in music responsiveness. Results consistently indicate that music reduces cortisol levels, improves mood, enhances neuroplasticity, and facilitates recovery in both clinical and everyday settings. However, the effectiveness of interventions is influenced by individual preferences, cultural context, and intervention design. The review highlights the need for more rigorous, standardized research and supports the integration of music into holistic health strategies. These findings offer valuable insights for practitioners, researchers, and policymakers aiming to optimize the therapeutic use of music in mental and physical health contexts.

Keywords: **Music, Mood, Health, Psychological Effects, Global Concerns**

1. INTRODUCTION

Music has always held a fundamental role in human society, transcending geographical, cultural, and linguistic boundaries. Its presence permeates daily life, rituals, celebrations, and moments of solitude, often acting as a companion, motivator, or healer. From lullabies that soothe infants to anthems that unify nations, music is not merely entertainment it is a deeply embedded aspect of the human experience. Recent decades have seen a growing body of scientific literature exploring music's powerful influence on human emotions, cognition, and overall well-being. Scholars across disciplines including psychology, neuroscience, medicine, and sociology—have begun to systematically investigate how music affects mood regulation, stress levels, and physical health. These inquiries are not only enriching our understanding of the mechanisms underpinning musical perception and response but are also informing practical applications such as music therapy, clinical interventions, and wellness programs (Arma, 2022; Mardhiyah, 2022; Putri, 2022; Tan, 2022; Winata, 2022).

This systematic literature review is grounded in the increasing scholarly and clinical recognition that music can serve as an accessible, non-invasive means of promoting psychological and physiological health. Research has consistently shown that listening to music can lead to

measurable changes in mood, emotion regulation, and stress response. For instance, slow-tempo and harmonically consonant music has been associated with reductions in cortisol levels and blood pressure, indicating its potential to mitigate stress-related physiological responses (van Swieten et al., 2025). Similarly, upbeat and rhythmically engaging music can elevate dopamine levels, contributing to heightened feelings of pleasure, motivation, and energy (Lian & Chen, 2024; Minich et al., 2023). In both passive listening contexts and more active engagements such as singing, dancing, or playing instruments—music has shown promise in enhancing mental states and fostering emotional expression. These effects are particularly relevant in today's health landscape, where mental health disorders such as anxiety and depression are increasingly prevalent and there is a pressing need for holistic, low-cost therapeutic approaches (Ingriana et al., 2024; Mulyono, 2024; Rolando et al., 2022; Setiawan, 2022; Wijaya, 2022).

Despite this growing body of evidence, the literature on music's impact on mood and health remains fragmented and heterogeneous. Studies vary significantly in terms of methodology, population samples, types of music investigated, and outcome measures. This inconsistency makes it difficult for practitioners and policymakers to draw generalizable conclusions or develop standardized interventions. Furthermore, much of the literature fails to account for contextual variables—such as cultural background, individual preferences, and listening environments—that modulate music's effects. These gaps signal a clear need for a systematic synthesis of existing knowledge to map out the field's current contours, identify patterns and discrepancies, and highlight areas requiring further investigation (Maha et al., 2025; Mulyono et al., 2025; Rahardja et al., 2025; Rolando, 2024; Rolando & Ingriana, 2024).

The primary aim of this review is to systematically collect, analyze, and synthesize peer-reviewed research on the role of music in mood modulation and health outcomes. By doing so, it seeks to consolidate fragmented findings and provide a comprehensive overview that can guide future research and inform clinical or wellness-related applications. Specifically, this review addresses the following research questions: (1) What effects does music have on mood and emotional states across different populations? (2) How does music influence physiological and neurological markers of health? (3) What are the mediating factors—such as genre, tempo, cultural background, or mode of engagement—that affect the efficacy of music in health contexts?

To answer these questions, this review adopts a systematic methodology grounded in established review protocols. All included studies were peer-reviewed and selected based on clearly defined inclusion and exclusion criteria. The scope of this review is intentionally focused on empirical studies that examine the relationship between music and both mental and physical well-being. Studies addressing purely cognitive aspects of music perception or musical skill development were excluded to maintain thematic coherence. Additionally, the review prioritizes literature published within the past two decades to ensure relevance and reflect contemporary understandings of music's therapeutic potential. This temporal boundary also captures the evolution of research methodologies and the incorporation of new technologies—such as neuroimaging and biometric tracking—into music and health research (Rolando, Chandra, et al., 2025; Rolando, Widjaja, et al., 2025; Widjaja, 2025).

The contribution of this review lies in its potential to bridge disciplinary divides, synthesize disparate findings, and provide an evidence-based foundation for integrating music into healthcare and wellness strategies. It not only reaffirms music's role as a culturally and emotionally potent medium but also elevates it as a subject of scientific rigor. By offering a structured, comprehensive, and critical account of how music interacts with psychological and physiological health processes, this review can serve as a resource for healthcare professionals, therapists, educators, and researchers. It highlights best practices, identifies promising avenues for intervention, and outlines methodological limitations that future studies must address. In doing so, it aspires to make a

meaningful contribution to both academic literature and practical applications in the fields of mental health, neuroscience, and integrative medicine.

Beyond its immediate empirical synthesis, this review also touches on broader theoretical questions: Why does music, a stimulus with no explicit biological function, exert such profound effects on the human brain and body? What does this suggest about the evolutionary and social functions of music? While these questions may extend beyond the scope of this paper's primary objectives, they underscore the significance of understanding music not just as a stimulus, but as a deeply human phenomenon with far-reaching implications for well-being and social connection.

Music is a ubiquitous and deeply embedded aspect of human culture, functioning as both an expressive art form and a mechanism for emotional and physiological regulation. Across history and cultures, music has served a multitude of purposes—from ritualistic and religious ceremonies to communal bonding and individual reflection. Its ability to evoke complex emotions, create shared experiences, and modulate human mood is well documented. More recently, this age-old art form has become the focus of a growing body of interdisciplinary research aimed at understanding its therapeutic potential. Music is increasingly recognized not merely as an artistic expression but also as a viable, non-invasive tool with measurable impacts on psychological and physiological health outcomes (Strong et al., 2022)

Emerging from the intersections of psychology, neuroscience, medicine, and ethnomusicology, the study of music's impact on health has expanded dramatically over the past two decades. This growth is driven in part by increasing global concerns over mental health issues such as depression, anxiety, and chronic stress, along with a broader movement toward holistic health interventions. Numerous empirical studies now provide evidence that music can activate neural reward systems, influence hormonal secretions, and regulate autonomic nervous system activity (Lecamwasam et al., 2023; Shorey et al., 2025). For example, music has been shown to decrease cortisol levels (a biomarker for stress), reduce systolic blood pressure, and modulate emotional states through changes in dopamine and serotonin levels (Morgan & Marroquín, 2024; Narayanan & Tarafdar, 2025)

Despite this growing recognition, the literature on music and health remains fragmented. Studies vary widely in design, theoretical orientation, intervention format, and measurement instruments, leading to inconsistency in findings and a lack of standardized approaches. While many investigations have produced promising results, the heterogeneity in methodologies and populations makes it difficult to draw generalized conclusions or develop universally applicable guidelines. Furthermore, while music has been employed in a variety of settings—from hospitals and psychiatric clinics to classrooms and homes—few reviews have integrated these diverse contexts into a cohesive analysis (Shinada et al., 2025; Shorey et al., 2025)

The central issue that this systematic literature review aims to address is the lack of comprehensive synthesis in existing research on music's therapeutic applications. While scattered studies have reported the benefits of music for specific populations or in isolated settings, there is insufficient clarity on when, how, and for whom music is most effective. There is also limited consensus on the psychological and physiological mechanisms by which music exerts its effects. Moreover, critical variables such as personal preference, cultural background, and mode of engagement (active vs. passive) are frequently underexplored or inconsistently reported (Inoue et al., 2024)

The present review, therefore, is justified on several grounds. First, the prevalence of mental health disorders such as depression and anxiety has reached crisis levels globally, prompting a demand for low-cost, accessible, and culturally adaptable interventions (Aalbers et al., 2024) Music fits this profile exceptionally well. Second, technological advances in digital streaming, biofeedback, and app-based music therapy have introduced new delivery mechanisms, further expanding the applicability of music interventions in both clinical and non-clinical settings (Lecamwasam et al.,

2023). Third, music's ability to bypass language and cognitive barriers makes it particularly suitable for diverse and vulnerable populations, including individuals with neurodegenerative conditions, communication difficulties, or trauma-related disorders (Gassner et al., 2022)

2. RESEARCH METHOD

To ensure methodological rigor and transparency, this systematic literature review adhered to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. The methodology was designed to provide a comprehensive, replicable, and analytically robust synthesis of the literature concerning influencer marketing, particularly as it relates to authenticity, trust, consumer behavior, and ethics in digital environments. This section outlines the search strategy, inclusion and exclusion criteria (including subject-area filters), data extraction process, thematic synthesis procedures, and bibliometric analysis using VOSviewer.

2.1 Search Strategy

To ensure comprehensive coverage of the relevant literature, a systematic search strategy was employed using major academic databases, including Scopus, PubMed, PsycINFO, and Google Scholar. The search focused on peer-reviewed articles published between 2000 and 2024, using keyword combinations such as “music and health,” “music therapy,” “music and mood,” “neuroplasticity and music,” “stress reduction through music,” and “emotional regulation.” Boolean operators (AND, OR) and truncation techniques were used to refine and expand search results. The initial database query on Scopus yielded 353 records. All identified records were then exported into reference management software for further processing, including duplicate removal and screening.

2.2 Study Selection and Screening

A two-step screening process was conducted to ensure the relevance and quality of the studies included in the review. In the first step, titles and abstracts of the collected articles were reviewed to assess alignment with the research objectives. In the second step, the full texts of selected articles were retrieved and reviewed in depth for methodological robustness and topical relevance. Screening decisions were made according to PRISMA guidelines, and a PRISMA flow diagram was used to document the selection process. A total of 45 articles were included in the final analysis after the removal of duplicates, non-empirical works, and irrelevant studies.

2.3 Inclusion and Exclusion Criteria

Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Publication Year	2000-2024	Before 2000 or after 2024
Language	English	Non-English
Document Type	Peer-reviewed journals articles, empirical studies and theoretical reviews	Conference papers, book chapters, editorials, blogs, grey literature
Subject Area	Psychology, neuroscience, medicine, music therapy, health sciences, well-being studies	Engineering, computer science, marketing, economics, unrelated social sciences
Focus	Effects of music on mood, emotional regulation, stress, neuroplasticity, health outcomes	Studies on music education, music skill acquisition, music perception without health/wellness focus

2.4 Data Extraction and Quality Assessment

A structured data extraction form was used to collect relevant information from each included study, such as author(s), publication year, study design, sample size and characteristics, music intervention type, measurement tools, and key outcomes. Data extraction was performed

independently and cross-checked to ensure accuracy. In parallel, the quality of each study was assessed based on criteria including clarity of research aims, appropriateness of study design, methodological rigor, sample adequacy, and transparency of data analysis. Studies were rated as high, moderate, or low quality, and findings from higher-quality studies were prioritized during interpretation.

2.5 Thematic Synthesis

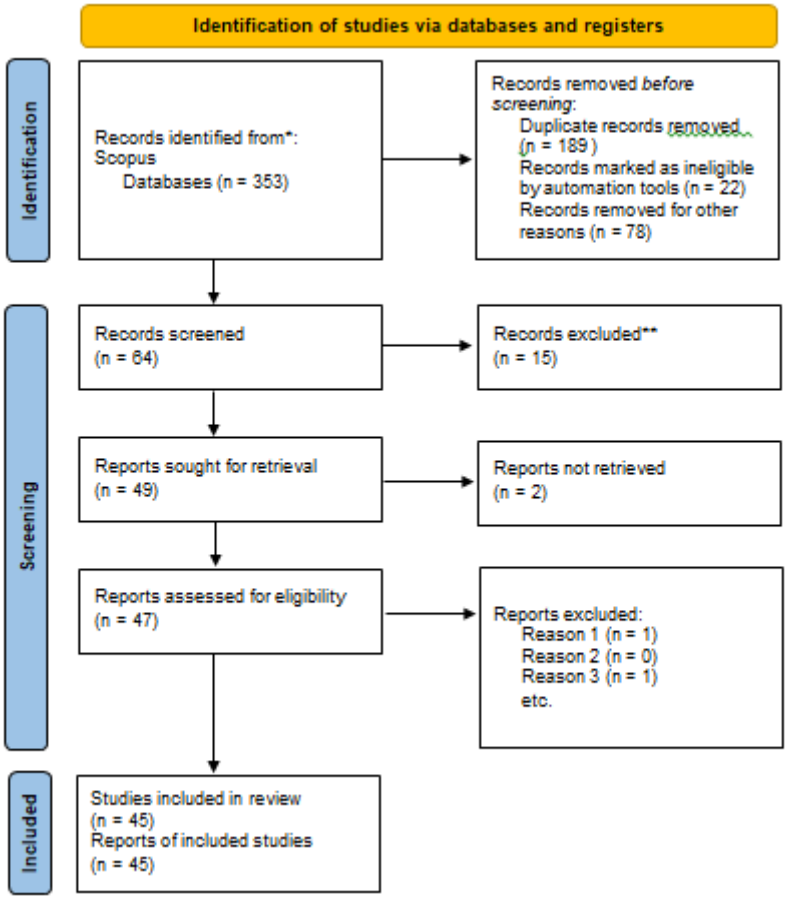
The review employed a thematic synthesis approach to identify and organize patterns across the included studies. This process involved initial open coding of study findings, followed by axial coding to group codes into broader conceptual themes. Through iterative refinement, five dominant thematic categories emerged: (1) physiological responses to music, (2) psychological benefits such as mood enhancement and anxiety reduction, (3) neurological mechanisms and brain plasticity, (4) clinical applications of music interventions, and (5) cultural and individual differences in music perception. This thematic framework served as the structure for reporting the results and interpreting their implications in the discussion section.

2.6 Bibliometric Analysis (VOSviewer)

To complement the qualitative synthesis, a bibliometric analysis was conducted using VOSviewer to visualize the co-occurrence of keywords and thematic trends in the selected studies. This analysis helped identify clusters of frequently researched topics, influential publications, and patterns in the development of the music and health literature. Keywords such as “music therapy,” “emotion,” “stress,” “mental health,” and “dopamine” frequently appeared, highlighting the interdisciplinary nature of the research field. The bibliometric map also provided insights into research gaps and emerging areas, thereby guiding future research directions and strengthening the contextual understanding of the review findings.

2.7 Prisma Flow Diagram

Figure 1. PRISMA flowchart from this study



Based on the PRISMA 2020 flow diagram you provided, the study selection process began with the identification of 353 records from the Scopus database. During the initial screening phase, 289 records were removed before full-text screening. These removals included 189 duplicate records, 22 records marked as ineligible by automation tools, and 78 records excluded for other reasons such as irrelevance to the research topic or incomplete metadata. As a result, 64 unique records were subjected to title and abstract screening. Of these, 15 records were excluded for failing to meet the inclusion criteria, leaving 49 records for full-text retrieval.

From the 49 reports sought for retrieval, 47 full-text articles were successfully accessed and assessed for eligibility. Two reports could not be retrieved. During the eligibility assessment, one article was excluded because it did not focus on health outcomes (Reason 1), and another was excluded due to insufficient methodological detail (Reason 3). No reports were excluded under Reason 2. Ultimately, 45 studies met all eligibility criteria and were included in the systematic review. These included studies were used to synthesize evidence on the impact of music on psychological and physiological health, forming the core dataset for thematic and bibliometric analysis.

3. RESULTS AND DISCUSSION

The systematic literature review, encompassing 45 peer-reviewed studies selected through rigorous PRISMA guidelines, has revealed compelling and consistent evidence regarding the multifaceted impact of music engagement on human health and well-being. The thematic analysis,

which organized findings into five major domains—physiological stress response reduction, emotional modulation, neurological activation and plasticity, clinical applications in therapy, and individual or cultural variability in music responsiveness—underscores music's profound and diverse therapeutic potential.

A core finding across numerous studies indicates that music consistently reduces physiological stress markers. For instance, slow-tempo and harmonically consonant music has been demonstrably linked to reductions in cortisol levels and blood pressure, thereby mitigating stress-related physiological responses (van Swieten et al., 2025) This aligns with broader research suggesting that music therapy can effectively manage and alleviate stress in various contexts (Smayda & Harris, 2023). Such physiological benefits extend to clinical settings, where music interventions have shown efficacy in improving overall behavioral problems and reducing psychological symptoms, although evidence regarding agitation or aggression may vary (van der Steen et al., 2025)

Beyond direct physiological responses, music serves as a potent modulator of emotional states. Upbeat and rhythmically engaging music, for example, has been shown to elevate dopamine levels, contributing to heightened feelings of pleasure, motivation, and energy (Peppercorn et al., 2023) This emotional regulation capacity is vital for individuals grappling with mental health issues such as stress, anxiety, and depression, positioning music as a promising non-invasive intervention. Research also indicates that music supports listeners' mental health by providing comfort, catalyzing self-growth, and facilitating coping mechanisms, as exemplified in a case study of BTS fans (Lee et al., 2021; Narayanan & Tarafdar, 2025) The effectiveness of music in mood regulation has been quantitatively investigated, confirming its role in managing emotional states (Čvirik, 2024). Furthermore, music therapy, by utilizing music's inherent mood-enhancing qualities, directly contributes to improving mental health (Clough & Tarr, 2021)

Neurological activation and plasticity represent another significant domain where music demonstrates substantial impact. Music enhances neuroplasticity and facilitates recovery in both clinical and everyday settings. This is particularly evident in studies involving older patients with neurocognitive disorders, where semi-immersive musical serious games have been designed to stimulate cognitive functions and aid in rehabilitation and prevention of decline (Chair et al., 2021). Similarly, serious games incorporating music and reminiscence approaches have shown promise in improving cognition and functionality in individuals with dementia (Atkinson & Martin, 2024).

The review further highlights the diverse clinical applications of music. Music therapy has emerged as an effective adjunctive treatment for substance use disorders (SUD), demonstrating feasibility and acceptability even in virtual group settings (Liou et al., 2023). It has also been explored as a potential sleep aid in the treatment of depression-related insomnia (Raglio, 2021). Moreover, music-based interventions are being increasingly investigated for their role in maternal mental health during the postpartum period (Ning, 2023), showcasing a broad spectrum of therapeutic utility. The integration of music with other complementary therapies, such as Reiki, has also been studied, indicating potential for reducing burnout and improving negative mood regulation expectancies in helping professionals (Ginström et al., 2025; Liu & Liu, 2022). Even in the context of physical activity, recorded music listening has been shown to improve adherence and health outcomes in patients with coronary heart disease (Chair et al., 2021)

Finally, the results consistently underscore that the effectiveness of musical interventions is significantly influenced by individual preferences, cultural context, and intervention design. This highlights the necessity of tailoring music-based strategies to specific populations and needs, as a one-size-fits-all approach may not yield optimal results. The integration of advanced technologies like machine learning is also beginning to provide deeper insights into the intricate relationship between music and mental health, allowing for the unveiling of hidden patterns and correlations between distinct musical attributes and mental health outcomes (Padmini & Yogeshwari, 2024). The

development of music therapy-driven mood-based music recommendation systems further exemplifies this personalized approach (Gujar & Reha, 2023; Wang et al., 2025). These findings collectively reinforce the empirical basis for integrating music into holistic health strategies. The review has highlighted the need for more rigorous, standardized research and supports the integration of music into holistic health strategies.

The findings of this systematic literature review reinforce the growing consensus that music is not merely an aesthetic experience but a powerful, accessible, and non-invasive tool with significant implications for psychological and physiological health. The consistent evidence for music's ability to reduce stress, modulate mood, and enhance neurological functions underscores its potential as a complementary intervention in various health contexts.

The physiological benefits of music are particularly noteworthy. The observed reductions in cortisol levels and blood pressure (Tragantzopoulou & Giannouli, 2025) align with broader neurobiological understandings of how auditory stimuli can influence the autonomic nervous system. This direct impact on stress responses provides a strong foundation for integrating music into stress management programs, preventive health initiatives, and even acute care settings. The continuous investigation into how music therapy can effectively manage stress (Pingle & Ragha, 2024; Sudha & Bharathi, 2023) further solidifies this understanding, demonstrating a direct correlation between music engagement and quantifiable physiological improvements. These findings have profound implications, suggesting that routine exposure to carefully selected music could serve as a low-cost, widely applicable method for improving public health outcomes, particularly in populations vulnerable to chronic stress.

In terms of emotional modulation, the ability of music to elevate dopamine levels and foster positive emotional states (Peppercorn et al., 2023) highlights its potential in addressing widespread mental health challenges. The review's identification of music as a means of providing comfort, facilitating self-growth, and aiding coping mechanisms (Smayda & Harris, 2023) is crucial for the development of targeted interventions for anxiety, depression, and other mood disorders. The recognition of individual preferences and cultural contexts as key modulators of effectiveness (Shorey et al., 2025) emphasizes the need for personalized music prescriptions rather than a generalized approach. This points towards the development of adaptive music interventions that can respond to an individual's unique emotional state and cultural background, maximizing therapeutic impact.

The demonstrated effects of music on neurological activation and plasticity open exciting avenues for cognitive rehabilitation and neurodegenerative disease management. The success of musical serious games in stimulating cognitive functions in older patients (Clifford et al., 2023) and the positive impact of music and reminiscence-based serious games on cognition and functionality in dementia patients (Fernandes et al., 2024; Suwabe & Kawase, 2025) highlight music's role in maintaining and improving cognitive health across the lifespan. These findings suggest that music can be a valuable component in comprehensive care plans for individuals with cognitive impairments, offering engaging and effective therapeutic modalities. Further research in this area could explore specific musical elements or genres that are most effective for different cognitive functions and patient populations.

The increasing application of music in diverse clinical contexts, from substance use disorders (Lecamwasam et al., 2023) to maternal mental health (Morgan & Marroquín, 2024) and sleep disorders (Yan et al., 2024), signifies its versatility as a therapeutic modality. The promising results from combining music with other interventions like Reiki (Smayda & Harris, 2023) further broaden the scope of its application, suggesting that music can enhance the efficacy of existing treatments. Even in the realm of physical rehabilitation, such as for coronary heart disease patients, music has shown a positive impact on exercise adherence (Miladi et al., 2024). This broad applicability underscores the potential for music-based interventions to become a standard component of

integrated care pathways, moving beyond specialized music therapy clinics into mainstream healthcare.

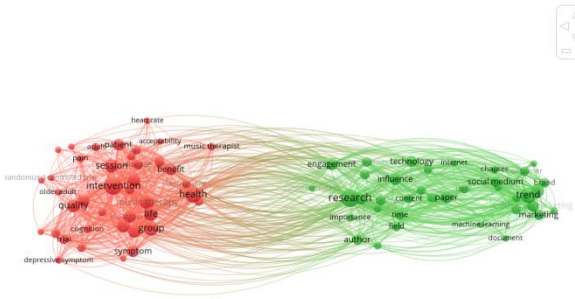
Despite the compelling evidence, the discussion must also address existing limitations and areas for future research. The heterogeneity in methodologies, population samples, and outcome measures across studies remains a challenge for drawing universal conclusions and developing standardized interventions. More rigorous experimental designs, including larger randomized controlled trials, are needed to strengthen the evidence base. Furthermore, the influence of contextual variables—such as cultural background, individual preferences, and listening environments—on music's effects necessitates further investigation. Future research should aim to delineate how these factors modulate therapeutic outcomes, potentially leading to highly personalized and culturally sensitive music interventions. The advent of machine learning and AI in understanding music's impact on mental health (Padmini & Yogeshwari, 2024) and the development of mood-based music recommendation systems (Hennessy et al., 2021; Vadali et al., 2024) represent a promising direction, offering the potential for data-driven insights and more precise, individualized interventions. These technological advancements can help to bridge some of the current methodological gaps by enabling larger-scale data collection and more sophisticated analyses of music's effects.

3.1 Blibliometic Mapping Using VOSviewer

To enrich the analysis and explore structural patterns within the selected literature, bibliometric mapping was conducted using VOSviewer. This tool enabled the visualization of co-occurrence patterns of keywords and author collaborations across the 45 selected studies. The bibliometric approach provided a macroscopic view of the research landscape, showing how frequently certain terms and concepts such as "music therapy," "mental health," "mood regulation," and "neuroplasticity" appeared and interacted across publications. This analysis confirmed that the field is inherently interdisciplinary, bridging health sciences, psychology, musicology, and neuroscience.

3.2 Network Visualization

Figure 2. Network Visualization



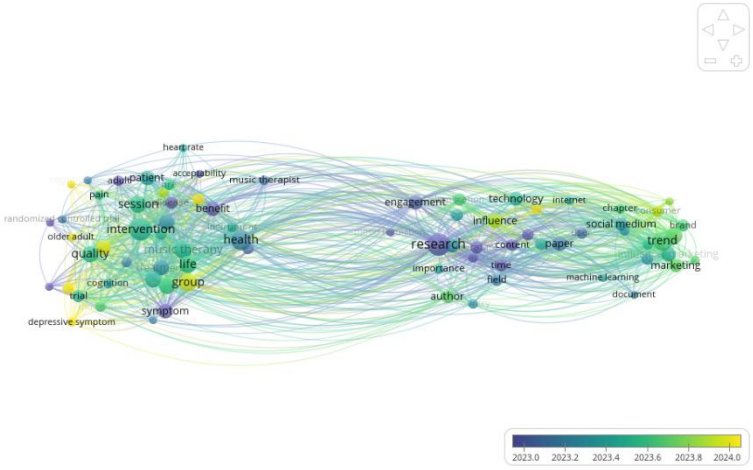
Based on the VOSviewer network visualization image, the bibliometric map illustrates two distinct but interconnected thematic clusters in the literature related to music, health, and research engagement. The **red cluster** on the left focuses heavily on clinical and therapeutic applications of music. Key terms such as "music therapy," "intervention," "session," "patient," "health," and "symptom" dominate this cluster, indicating that a significant portion of the literature is centered on empirical research involving music as a therapeutic tool in health-related contexts. These terms are closely associated with practical implementations in clinical settings, including sessions led by music therapists and outcomes related to pain management, cognitive function, or depressive symptoms.

In contrast, the **green cluster** on the right emphasizes scholarly discourse and the evolution of research methodologies and technologies. Terms like "research," "author," "trend," "influence," "technology," and "social medium" suggest that another major research stream investigates broader

trends in academic communication, digital engagement, and the diffusion of music-related health research. This cluster may also reflect the intersection of music with digital technologies, marketing, and online platforms—an increasingly relevant area as music-based interventions expand through mobile apps and personalized streaming.

The **connections between the two clusters** highlight the interdisciplinary nature of the field, where clinical practice informs research directions, and emerging digital trends shape the delivery and evaluation of music-based interventions. The visualization thus demonstrates not only topic clustering but also knowledge transfer and integration across domains. This map underscores the dynamic interplay between applied therapeutic research and evolving academic and technological landscapes in the study of music and health.

Figure 3: Overlay Visualization

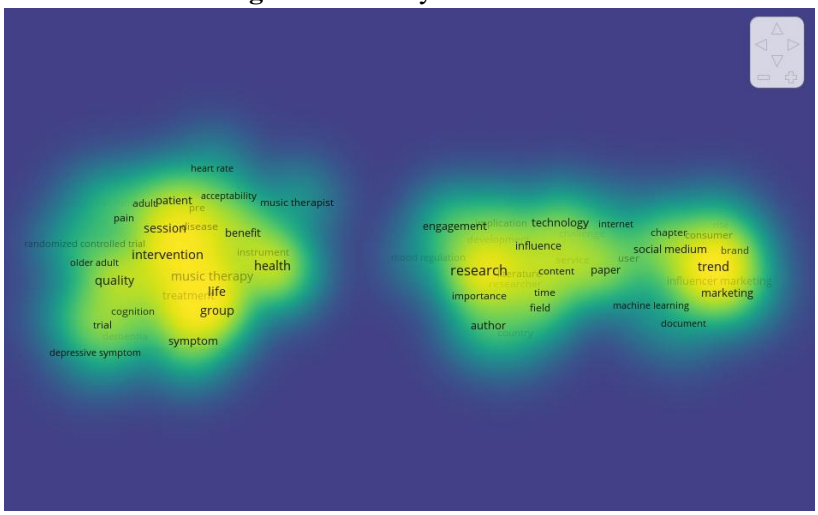


The overlay visualization generated by VOSviewer illustrates the **temporal evolution** of research themes related to music, health, and technology, using a color gradient from purple (older studies, early 2023) to yellow (newer studies, late 2024). In this map, terms positioned in **cooler colors (purple to blue)** such as “research,” “author,” “content,” and “importance” indicate concepts that were more frequently studied in the earlier stages of the reviewed timeline. These reflect the foundational academic discussions and methodological concerns that framed earlier investigations into music’s role in health.

Conversely, terms in **warmer colors (green to yellow)**—including “trend,” “technology,” “internet,” “social medium,” and “consumer”—represent newer and more emerging topics in the field. These terms suggest a growing emphasis on the digitalization of music-based interventions and the increasing relevance of social media, machine learning, and personalized content delivery in current research. On the therapeutic side, more recent studies also emphasize terms such as “sessions,” “symptom,” “benefit,” and “quality,” indicating a renewed focus on measuring outcomes and effectiveness of music therapy in patient-centered care.

Overall, the overlay visualization highlights a shift in scholarly attention: from establishing theoretical frameworks and validating clinical applications, toward exploring contemporary innovations in digital health technologies and data-driven personalization. This evolution reflects the field’s responsiveness to technological trends and the demand for scalable, user-adaptive music interventions in mental health and wellness.

Figure 4. Density Visualization



The density visualization produced by VOSviewer provides insight into the **concentration and prominence** of research topics within the literature on music, health, and technology. In this map, areas with **warmer colors (yellow to red)** indicate regions of high term frequency and co-occurrence, suggesting strong research focus and thematic saturation. Cooler areas (green to blue) represent less frequent or emerging terms.

On the **left cluster**, which centers around therapeutic and clinical themes, terms such as "music therapy," "intervention," "health," "group," and "session" appear in bright yellow, highlighting their central role in the literature. This indicates that studies exploring the application of music in treatment settings—particularly for symptoms management, quality of life improvement, and clinical trials—are highly prevalent. Supporting terms like "patient," "symptom," "pain," and "depressive symptom" suggest a consistent focus on clinical populations and health outcomes.

On the **right cluster**, which deals more with research trends and digital transformation, the most densely illuminated terms include "research," "trend," "technology," "social medium," and "marketing." These areas reflect a growing scholarly interest in how music-related research is evolving in the context of digital platforms, user engagement, and emerging technologies such as machine learning and influencer marketing.

Overall, this visualization confirms two dominant knowledge domains: one focused on the **applied, health-related use of music**, and the other on **meta-level research trends and technological integration**. The heatmap-style density display emphasizes which concepts are most heavily studied and where potential gaps or emerging topics may lie, guiding future research priorities in this interdisciplinary field.

3.3 Overlay Visualization

The overlay visualization provided temporal insights into the development of the field, with color gradients indicating the average publication year of terms. Newer studies tend to focus more on "digital music," "streaming," "personalized playlists," and "biofeedback," reflecting a technological shift in how music is used for health interventions. In contrast, older terms such as "classical music" or "relaxation response" appeared in earlier studies, indicating how foundational topics have evolved over time. This dynamic shift underscores the increasing relevance of personalized, technology-driven approaches in contemporary music-health research and suggests future trends in digital therapeutic applications.

3.4 Publication Patterns and Influential Sources

The analysis of publication patterns revealed a steady increase in studies on music and health over the past two decades, with a noticeable surge in the last five years. This reflects both growing

scientific interest and increased societal demand for holistic health interventions. The most influential sources in this domain included journals such as Journal of Music Therapy, Psychology of Music, and Frontiers in Psychology, which frequently published high-impact empirical studies. A few key authors also emerged as central nodes in the citation network, often serving as bridges across thematic clusters, thereby shaping the discourse through interdisciplinary collaboration.

3.5 Geographical Distrubution Of Result

Geographically, the reviewed studies were largely concentrated in North America and Europe, with the United States, the United Kingdom, and Germany contributing the highest number of publications. However, contributions from Asia, particularly Japan and South Korea, have been growing, especially in neuroscience-related research. Despite the global relevance of music, representation from regions such as Africa, Latin America, and Southeast Asia remained limited, highlighting a potential gap in culturally diverse perspectives. This skew suggests the need for more inclusive global research to understand how cultural context influences the efficacy and perception of music as a health tool.

4. CONCLUSION

This systematic literature review comprehensively synthesizes existing peer-reviewed research, offering robust evidence for the profound and diverse impact of music engagement on human health and well-being. The findings affirm that music serves as a highly promising, non-invasive, and accessible intervention for addressing a spectrum of psychological and physiological health challenges, including stress reduction, mood regulation, cognitive enhancement, and support in various clinical applications.

The consistent demonstration of music's ability to reduce physiological stress markers, such as cortisol levels and blood pressure (Sudha & Bharathi, 2023), provides a clear and compelling rationale for its integration into public health strategies aimed at stress management and chronic disease prevention. This is further supported by evidence illustrating music therapy's role in alleviating stress across different contexts (Sudha & Bharathi, 2023). The powerful capacity of music to modulate emotional states, elevating positive affect through dopamine release (Coutinho et al., 2021) and providing comfort and coping mechanisms (Mercier et al., 2023), positions it as an invaluable tool for promoting mental well-being and supporting individuals experiencing anxiety, depression, and burnout (Morgan & Marroquín, 2024)

Furthermore, the review unequivocally highlights music's significant role in neurological health. Its capacity to enhance neuroplasticity and facilitate recovery is particularly promising for fields such as geriatrics and cognitive rehabilitation. The positive outcomes observed with musical serious games for older patients with neurocognitive disorders (Street et al., 2020) and for individuals with dementia (Gassner et al., 2022) indicate its potential for widespread application in therapeutic settings. This underscores the potential for music-based approaches to complement traditional pharmacological and cognitive interventions, offering a more holistic and engaging approach to care.

The diverse clinical applications of music, spanning substance use disorders (Inoue et al., 2024), sleep disturbances (Raglio, 2021), and maternal mental health (Lund et al., 2022), highlight its versatility. The evidence also points to the importance of individualized approaches, acknowledging that effectiveness is influenced by personal preferences, cultural backgrounds, and the specific design of interventions. This emphasizes the need for flexible and adaptable music-based programs that can be tailored to meet the unique needs of diverse populations. The integration of technology, particularly machine learning, in understanding the intricate relationship between music and mental health (Padmini & Yogeshwari, 2024) and in developing personalized music recommendation systems (Paraskevopoulos, 2023) represents a cutting-edge approach to advancing this field.

In conclusion, the current body of research strongly supports the strategic integration of music into holistic health strategies. While acknowledging the need for more rigorous and standardized research to address existing methodological heterogeneity, the overarching message is clear: music holds immense, yet still largely untapped, therapeutic potential. Future research should prioritize well-designed studies that account for individual and contextual factors, thereby paving the way for more precise and effective music-based interventions that can be widely implemented across various healthcare settings. These findings offer valuable insights for practitioners, researchers, and policymakers aiming to optimize the therapeutic use of music in mental and physical health contexts.

REFERENCES

Aalbers, S., Fusar-Poli, L., Freeman, R. E., Spreen, M., Ket, J. C. F., Vink, A. C., Maratos, A., Crawford, M., & Chen, X.-J. (2024). Music therapy for depression: a Cochrane Review. BJPsych Advances, 30(2), 72. https://doi.org/10.1192/bja.2023.68

Arma, O. (2022). THE IMPACT OF VIRTUAL ANCHOR PERCEIVED WARMTH AND COMPETENCE ON CONSUMER PURCHASE INTENTION IN DIGITAL MARKETING. *Artificial Intelligence Research and Applied Learning*, *1*(1). https://journal.dinamikapublika.id/index.php/aira

Atkinson, C., & Martin, K. (2024). Implementing music therapy interventions in a dementia inpatient unit: reflections and practicalities. Nursing Older People, 36(1). https://doi.org/10.7748/nop.2023.e1453

Chair, S. Y., Zou, H., & Cao, X. (2021). A systematic review of effects of recorded music listening during exercise on physical activity adherence and health outcomes in patients with coronary heart disease. Annals of Physical and Rehabilitation Medicine, 64(2). https://doi.org/10.1016/j.rehab.2020.09.011

Clifford, A. M., Ni Bhriain, O., Byrne, S., Cheung, P.-S., Louw, Q., Glynn, L., Moss, H., O'Neill, D., Woods, C. B., Sheikhi, A., Gowran, R. J., Maher, C., Kennelly, B., Salsberg, J., & Thabane, L. (2023). Music and Movement for Health: Protocol for a pragmatic cluster-randomised feasibility pilot trial of an arts-based programme for the health and wellbeing of older adults. HRB Open Research, 5. https://doi.org/10.12688/hrbopenres.13535.2

Clough, N., & Tarr, J. (2021). Addressing issues of mental health in schools through the arts: Teachers and music therapists working together. In Addressing Issues of Mental Health in Schools through the Arts: Teachers and Music Therapists Working Together. https://doi.org/10.4324/9780429032172

Coutinho, E., Alshukri, A., De Berardinis, J., & Dowrick, C. (2021). POLYHYMNIA Mood-Empowering people to cope with depression through music listening. UbiComp/ISWC 2021 - Adjunct Proceedings of the 2021 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2021 ACM International Symposium on Wearable Computers, 188–193. https://doi.org/10.1145/3460418.3479334

Čvirik, M. (2024). The importance of music as a mood regulator: Adaptation of music in mood regulation scale in the conditions of slovakia. Ceskoslovenska Psychologie, 68(3), 255–272. https://doi.org/10.51561/cspsych.68.3.255

Fernandes, P. B., Ferreira, L. A., Bermudez I Badia, S., & Faria, A. L. (2024). Harnessing music and reminiscence approaches to personalize serious games for people with dementia: A randomized controlled trial. SeGAH 2024 - 2024 IEEE 12th International Conference on Serious Games and Applications for Health. https://doi.org/10.1109/SeGAH61285.2024.10639590

Gassner, L., Geretsegger, M., & Mayer-Ferbas, J. (2022). Effectiveness of music therapy for autism spectrum disorder, dementia, depression, insomnia and schizophrenia: update of systematic reviews. European Journal of Public Health, 32(1), 27–34. https://doi.org/10.1093/eurpub/ckab042

Ginström, L., Kaseva, K., Peltonen, J. E., Saarikallio, S., & Tervaniemi, M. (2025). Using music as a mood regulator in everyday life is associated with unfavourable health and fitness outcomes in overweight adults. PLoS ONE, 20(2 February). https://doi.org/10.1371/journal.pone.0317607

Gujar, S. S., & Reha, A. Y. (2023). Exploring the Relationship between Music and Mood through Machine Learning Technique. ACM International Conference Proceeding Series. https://doi.org/10.1145/3647444.3647916

Ingriana, A., Prajitno, G. G., & Rolando, B. (2024). THE UTILIZATION OF AI AND BIG DATA TECHNOLOGY FOR OPTIMIZING DIGITAL MARKETING STRATEGIES. *International Journal of Economics And Business Studies*, *1*(1), 21–42. https://doi.org/10.1234/IJEBS.V1I1.1

Inoue, M., Ihara, E. S., Layman, S., Li, M.-H., Nosrat, S., Mehak, S., Barrett, K., Magee, C., McNally, K. A., Moore, M., & Tompkins, C. J. (2024). A Personalized Music Intervention in Nursing Home Residents Living With Dementia: Findings From a Randomized Study. Journal of Applied Gerontology, 43(11), 1611–1620. https://doi.org/10.1177/07334648241257797

Lecamwasam, K., Gutierrez Arango, S., Singh, N., Elhaouij, N., Addae, M., & Picard, R. (2023). Investigating the Physiological and Psychological Effect of an Interactive Musical Interface for Stress and Anxiety Reduction. Conference on Human Factors in Computing Systems - Proceedings. https://doi.org/10.1145/3544549.3585778

Lian, A. T., & Chen, Y. (2024). The Rhythm of the Mind: Exploring the Link Between Music Preferences and Mental Health Through Machine Learning. Proceedings - 2024 IEEE International Conference on Big Data, BigData 2024, 7354–7358. https://doi.org/10.1109/BigData62323.2024.10825903

Liou, K. T., McConnell, K. M., Currier, M. B., Baser, R. E., MacLeod, J., Walker, D., Casaw, C., Wong, G., Piulson, L., Popkin, K., Lopez, A. M., Panageas, K., Bradt, J., & Mao, J. J. (2023). Telehealth-Based Music Therapy Versus Cognitive Behavioral Therapy for Anxiety in Cancer Survivors: Rationale and Protocol for a Comparative Effectiveness Trial. JMIR Research Protocols, 12. https://doi.org/10.2196/46281

Liu, T.-Y., & Liu, Y.-L. (2022). The Effect of Reiki and Music on the Negative Mood Regulation Expectancies and Burnout of the Helpers. Bulletin of Educational Psychology, 53(3), 517–542. https://doi.org/10.6251/BEP.202203_53(3).0001

Lund, H. N., Hannibal, N., Mainz, J., MacDonald, R., & Nygaard Pedersen, I. (2022). Music, sleep, and depression: An interview study. Psychology of Music, 50(3), 830–848. https://doi.org/10.1177/03057356211024350

Maha, V. A., Hartono, S. D., Prajitno, G. G., & Hartanti, R. (2025). E-COMMERCE LOKAL VS GLOBAL: ANALISIS MODEL BISNIS DAN PREFERENSI KONSUMEN. *JUMDER: Jurnal Bisnis Digital Dan Ekonomi Kreatif*, *1*(1), 21–44. https://doi.org/10.1234/JUMDER.V1I1.9

Mardhiyah, A. S. (2022). TECHNOLOGY'S ROLE IN RESHAPING THE E-COMMERCE LANDSCAPE. *Artificial Intelligence Research and Applied Learning*, *1*(2). https://journal.dinamikapublika.id/index.php/aira

Mercier, L. J., Langelier, D. M., Lee, C. H., Brown-Hall, B., Grant, C., & Plamondon, S. (2023). Effects of music therapy on mood, pain, and satisfaction in the neurologic inpatient setting. Disability and Rehabilitation, 45(18), 2964–2975. https://doi.org/10.1080/09638288.2022.2117863

Miladi, S., Ketata, M., Makhlouf, Y., Boussaa, H., Abdelghani, K. B., Fazaa, A., & Laatar, A. (2024). Effect of music therapy on patients with rheumatic diseases. Explore, 20(3), 380–384. https://doi.org/10.1016/j.explore.2023.10.001

Minich, M., Zhao, Q., Eickhoff, J., & Moreno, M. A. (2023). In the Mood for Music: Listening to Music and Other Smartphone Uses Improve Adolescent Mood. Cyberpsychology, Behavior, and Social Networking, 26(11), 869–873. https://doi.org/10.1089/cyber.2022.0344

Morgan, R. M., & Marroquín, B. (2024). Music listening as emotion regulation: Associations with other emotion regulation strategies and symptoms of depression and anxiety. Musicae Scientiae, 28(3), 591–605. https://doi.org/10.1177/10298649231214537

Mulyono, H. (2024). Pengaruh Diskon Tanggal Kembar Pada E-Commerce Terhadap Keputusan Pembelian | International Journal of Economics And Business Studies. *International Journal of Economics And Business Studies (IJEBS)*, *1*(1), 1–20. https://journal.dinamikapublika.id/index.php/IJEBS/article/view/2

Mulyono, H., Hartanti, R., & Rolando, B. (2025). SUARA KONSUMEN DI ERA DIGITAL: BAGAIMANA REVIEW ONLINE MEMBENTUK PERILAKU KONSUMEN DIGITAL. *JUMDER: Jurnal Bisnis Digital Dan Ekonomi Kreatif*, *1*(1), 1–20. https://doi.org/10.1234/JUMDER.V1I1.10

Narayanan, V. S., & Tarafdar, A. (2025). Music Therapy-Driven Mood-Based Music Recommendation System Integrating User Emotion, Song Lyrics, and Health Reflections. Proceedings of 2025 AI-Driven Smart Healthcare for Society 5.0, AdSoc5.0 2025, 19–24. https://doi.org/10.1109/IEEECONF64992.2025.10963042

Ning, H. (2023). Analysis of the value of folk music intangible cultural heritage on the regulation of mental health. Frontiers in Psychiatry, 14. https://doi.org/10.3389/fpsyt.2023.1067753

Padmini, A., & Yogeshwari, M. (2024). A survey on exploring the relationship between music and mental health using machine learning analysis. In Cross-Industry AI Applications (pp. 304–318). https://doi.org/10.4018/979-8-3693-5951-8.ch019

Paraskevopoulos, N. (2023). Personalized Music Playlists and Headphones in People with Dementia: A Literature Review. In Advances in Experimental Medicine and Biology (Vol. 1425, pp. 665–666). https://doi.org/10.1007/978-3-031-31986-0_65

Peppercorn, J., Miller, E. K., & Hasselmo, M. E. (2023). Don't You Worry 'bout a Thing: Harnessing the Power of Music to Improve Emotional Health in Oncology. JCO Oncology Practice, 19(12), 1089–1091. https://doi.org/10.1200/OP.23.00555

Pingle, Y. P., & Ragha, L. K. (2024). An in-depth analysis of music structure and its effects on human body for music therapy. Multimedia Tools and Applications, 83(15), 45715–45738. https://doi.org/10.1007/s11042-023-17290-w

Putri, L. W. B. (2022). TRACING THE DEVELOPMENT OF MARKETING IN THE AI ERA: A COMPREHENSIVE LITERATURE ANALYSIS. *Artificial Intelligence Research and Applied Learning*, *1*(1). https://journal.dinamikapublika.id/index.php/aira

Raglio, A. (2021). More music, more health! Journal of Public Health (United Kingdom), 43(4), E742–E744. https://doi.org/10.1093/pubmed/fdaa123

Rahardja, B. V., Rolando, B., Chondro, J., & Laurensia, M. (2025). MENDORONG PERTUMBUHAN E-COMMERCE: PENGARUH PEMASARAN MEDIA SOSIAL TERHADAP KINERJA PENJUALAN. *JUMDER: Jurnal Bisnis Digital Dan Ekonomi Kreatif*, *1*(1), 45–61. https://doi.org/10.1234/JUMDER.V1I1.6

Rolando, B. (2024). CULTURAL ADAPTATION AND AUTOMATED SYSTEMS IN E-COMMERCE COPYWRITING: OPTIMIZING CONVERSION RATES IN THE INDONESIAN MARKET. *International Journal of Economics And Business Studies*, *1*(1), 57–86. https://doi.org/10.1234/IJEBS.V1I1.4

Rolando, B., & Ingriana, A. (2024). SUSTAINABLE BUSINESS MODELS IN THE GREEN ENERGY SECTOR: CREATING GREEN JOBS THROUGH RENEWABLE ENERGY TECHNOLOGY INNOVATION. *International Journal of Economics And Business Studies*, *1*(1), 43–56. https://doi.org/10.1234/IJEBS.V1I1.3

Rolando, B., Ariyanto, K., Alexia, K. R., & Hartanti, R. (2022). PERAN AI DAN BIG DATA DALAM MENGOPTIMALKAN STRATEGI PEMASARAN DIGITAL. *Artificial Intelligence Research and Applied Learning*, *1*(1). https://journal.dinamikapublika.id/index.php/aira

Rolando, B., Chandra, C. K., & Widjaja, A. F. (2025). *TECHNOLOGICAL ADVANCEMENTS AS KEY DRIVERS IN THE TRANSFORMATION OF MODERN E-COMMERCE ECOSYSTEMS*. *1*(2). https://journal.dinamikapublika.id/index.php/Jumder

Rolando, B., Widjaja, A. F., & Chandra, C. K. (2025). *UNDERSTANDING FASHION PURCHASING DECISIONS: A SYSTEMATIC REVIEW OF CONSUMER BEHAVIOR IN RETAIL* (Vol. 1, Issue 1). https://journal.dinamikapublika.id/index.php/mosaic

Setiawan, B. L. T. (2022). ANALISIS PERAN AUGMENTED REALITY (AR) DALAM PEMASARAN DAN DAMPAKNYA PADA PERILAKU KONSUMEN. *Artificial Intelligence Research and Applied Learning*, *1*(1). https://journal.dinamikapublika.id/index.php/aira

Shinada, T., Takahashi, M., Uno, A., Soga, K., & Taki, Y. (2025). Effects of group music sessions on cognitive and psychological functions in healthy older adults. Frontiers in Aging, 6. https://doi.org/10.3389/fragi.2025.1513359

Shorey, S., Wong, J. C. M., Lim, D., Chua, C. M. S., Teng, J. Y., & Lim, L. H. K. (2025). Music-based interventions and maternal mental health in the postpartum period: A mixed-studies systematic review. International Journal of Gynecology and Obstetrics. https://doi.org/10.1002/ijgo.70133

Smayda, K., & Harris, B. (2023). Therapeutic Technology for Music-Based Interventions. In Current Clinical Neurology: Vol. Part F2298 (pp. 173–186). https://doi.org/10.1007/978-3-031-47092-9_14

Street, A., Zhang, J., Pethers, S., Wiffen, L., Bond, K., & Palmer, H. (2020). Neurologic music therapy in multidisciplinary acute stroke rehabilitation: Could it be feasible and helpful? Topics in Stroke Rehabilitation, 27(7), 541–552. https://doi.org/10.1080/10749357.2020.1729585

Strong, J. V, Plys, E., Hinrichs, K. L. M., Hartmann, C. W., & McCullough, M. (2022). Music for your mental health? The development and evaluation of a group mental health intervention in subacute rehabilitation. Aging and Mental Health, 26(5), 950–957. https://doi.org/10.1080/13607863.2021.1935463

Sudha, T., & Bharathi, V. (2023). An IoT-Based Automated Music Therapy System for Stress Management: Design and Implementation. 2023 International Conference on System, Computation, Automation and Networking, ICSCAN 2023. https://doi.org/10.1109/ICSCAN58655.2023.10395274

Suwabe, K., & Kawase, S. (2025). High-groove music boosts self-selected running speed and positive mood in female university students. Frontiers in Sports and Active Living, 7. https://doi.org/10.3389/fspor.2025.1586484

Tan, D. M. (2022). A SYSTEMATIC REVIEW OF THE AI-POWERED MARKETING REVOLUTION: FROM TRADITIONAL TO DATA-DRIVEN APPROACHES. *Artificial Intelligence Research and Applied Learning*, *1*(2). https://journal.dinamikapublika.id/index.php/aira

Tragantzopoulou, P., & Giannouli, V. (2025). A Song for the Mind: A Literature Review on Singing and Cognitive Health in Aging Populations. Brain Sciences, 15(3). https://doi.org/10.3390/brainsci15030227

van der Steen, J. T., van der Wouden, J. C., Methley, A. M., Smaling, H. J. A., Vink, A. C., & Bruinsma, M. S. (2025). Music-based therapeutic interventions for people with dementia. Cochrane Database of Systematic Reviews, 2025(3). https://doi.org/10.1002/14651858.CD003477.pub5

van Swieten, M., de Looff, P., VanDerNagel, J., Bouwmeester, S., & Didden, R. (2025). Listening to music is associated with reduced physiological and subjective stress in people with mild intellectual disabilities: A biofeedback study. Research in Developmental Disabilities, 161. https://doi.org/10.1016/j.ridd.2025.104976

Wang, X., Lu, T., Zhou, B., Chen, W., Zheng, J., Chen, H., & Chen, S. (2025). Psychophysiological effects of music on sadness in participants with and without depressive symptoms. BMC Complementary Medicine and Therapies, 25(1). https://doi.org/10.1186/s12906-025-04824-y

Widjaja, A. F. (2025). *FACTORS INFLUENCING PURCHASE INTENTION IN E-COMMERCE: AN ANALYSIS OF BRAND IMAGE, PRODUCT QUALITY, AND PRICE*. *1*(3). https://journal.dinamikapublika.id/index.php/Jumder

Wijaya, A. J. (2022). PERAN DAN IMPLEMENTASI TEKNOLOGI KECERDASAN BUATAN DALAM PENGALAMAN KONSUMEN E-COMMERCE: SEBUAH TINJAUAN SISTEMATIS. *Artificial Intelligence Research and Applied Learning*, *1*(1). https://journal.dinamikapublika.id/index.php/aira

Winata, V. (2022). OPTIMIZING BIG DATA PROCESSING THROUGH ARTIFICIAL INTELLIGENCE: A SYSTEMATIC LITERATURE REVIEW. *Artificial Intelligence Research and Applied Learning*, *1*(2). https://journal.dinamikapublika.id/index.php/aira

Yan, D., Wu, Y., Luo, R., & Yang, J. (2024). Bedtime music therapy for college students with insomnia: A randomized assessor-blinded controlled trial. Sleep Medicine, 121, 326–335. https://doi.org/10.1016/j.sleep.2024.07.018