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Influence of music on the hearing and mental health of adolescents and countermeasures

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This review elaborates on the influence of music on the psychological well-being of adolescents, covering the potential advantages, drawbacks, and necessary strategic interventions associated with music exposure. Initially, we characterize music and delve into a multifaceted classification system. Music, as a pervasive art form, is categorized based on regional and national parameters, and it also distinguishes through the assorted genres and traits. The mental well-being of adolescents is significantly influenced by music through mechanisms such as the facilitation of emotional expression and regulation, fortification of social bonds and the sense of belonging, as well as the fostering of creativity and cognitive development. Nonetheless, music, if misused or associated with inappropriate content, could elicit a spectrum of issues ranging from auditory impairment, diversion of attention, addiction tendencies, to the induction of negative emotions. To counteract these potential hazards, we propose several mitigation strategies including the selection of appropriate music styles, the establishment of a wholesome music environment, the promotion of the constructive role of music education, and fostering active participation in music activities among the youth. In conclusion, we underscore the necessity of a collaborative endeavor from all sectors of society to ensure a healthy music environment for the youth, which in turn would enhance the positive influence of music on the mental health development of this population.

KEYWORDS

adolescents, mental health, music influence, hearing, review

1. Introduction

Music, as an immersive and broad artistic medium, plays a pivotal role in the lives of adolescents. This stage of life, commonly known as adolescence, is viewed as a crucial period for psychological, social, and cognitive development; the role of music within this framework is significant. As per the research conducted by [Ouerqui et al. \(2023\)](#), youth display a high frequency of interaction and deep engagement with music. In the contemporary digital age, music is ubiquitous. Whether via streaming services, social media platforms, or traditional radio and television, music is woven into the fabric of young people's lives. This pervasive presence of music provides adolescents with a means to express themselves and articulate their emotions; furthermore, it has emerged as a crucial avenue for their social interactions.

Numerous adolescents opt to convey their identities and emotions by curating and sharing music playlists ([Taruffi, 2021](#); [Feneberg et al., 2023](#)). This behavior extends beyond the expression of their musical esthetics; it mirrors their quest for resonance and the establishment of social relationships through music. For instance, a melancholic playlist might communicate an adolescent's low mood, whereas an energetic playlist can depict their elation and positivity.

Moreover, sharing these playlists encourages youth to find shared interests among friends and peers, thereby enhancing social connections. Concurrently, music plays a key role in shaping adolescents' identity and self-perception (McFerran et al., 2010; Haeyen and Noorthoorn, 2021). During this phase, adolescents engage in the process of discovering and molding their identities; the music they select and appreciate often reflects their values, beliefs, and self-concepts. This journey of self-recognition and self-expression through music significantly affects adolescents' mental health and development.

In recent years, there has been an escalating focus on research exploring the influence of music on adolescents' mental health. For example, Knoerl R and Neal-Barnett A discovered that youth frequently utilize music as a coping mechanism for their emotions, such as alleviating stress and enhancing mood (Neal-Barnett et al., 2019; Knoerl et al., 2022). Further, several studies have indicated that collaborative musical activities (like choir participation or orchestra) can boost adolescents' social skills and self-esteem (Porter et al., 2017). However, some research has also highlighted potential risks associated with music, including hearing damage and distraction (Halevi-Katz et al., 2015). These studies collectively underscore the profound influence of music on the mental health of adolescents.

The aim of this article is to review the existing research on the effect of music on the psychological health of adolescents, with a specific emphasis on the benefits and potential hazards of music and strategies for ensuring that adolescents can safely enjoy the psychological benefits of music. This review hopes to offer practical suggestions for parents, educators, and community workers and to guide future research in this domain.

2. Definition and classification of music

2.1. Definition of music

Music, as a universal form of human expression, has a well-known definition, but it has multiple interpretations in terms of substance and artistic features. In its essence, music is a conscious and organized expression of sound and silence (Tervaniemi, 2023). It involves elements such as melody (a musical phrase formed by a series of notes), rhythm (the organization and duration of notes), harmony (two or more notes sound simultaneously), and color (the characteristics and sensations of music, often contributed by specific instruments or sound sources).

In terms of artistic features, music is regarded as a universal human language that can convey emotions, express ideas, provide comfort, and cross cultural boundaries. It is an art form with high expressiveness and depth, through which we can experience various aspects of life (Mastnak, 2016).

2.2. Classification of music

The diversity of music is reflected in its broad classification. Classified by region and country, music from different regions reflects their respective cultural characteristics and traditions. For example, Chinese music is famous for its unique pentatonic scale,

strong expressiveness, and rich variety of instruments (Wang et al., 2021; Su and Kong, 2023). The characteristics of Indian music are complex rhythmic structures, such as Tala, and improvisation based on the scale (Raga; Fletcher, 1915; Sharma et al., 2021). Western classical music is known for its rigorous formal structure, rich harmony, and complex note textures (Georges, 2017; Lepping et al., 2019).

Another classification method is based on the genre and characteristics of music. Classical music usually refers to music created between 1650 and 1900, with carefully crafted compositions and rich expressive power. Pop music is the most common type of music since the mid-20th century, characterized by simple melodies, easily accepted lyrics, and strong rhythms (Ren, 2021). Jazz originated in the early 20th century in the United States and is known for its unique rhythm (such as swing rhythm) and extensive improvisation (Roe and Lysaker, 2023). Rock music originated in the United States in the 1950s, and it has had a widespread impact worldwide due to its strong rhythm and gripping guitar solos (Bogt et al., 2021).

Each type of music has its unique characteristics and forms of expression, providing people with various ways of expression and experience. The richness and diversity of music not only reflect human creativity but also provide a powerful tool that can influence and shape our psychological state.

3. Benefits of music

3.1. Facilitates expression and regulation of emotions

Music has long been recognized as a potent medium for expressing emotions. It enables individuals to convey a wide spectrum of complex emotions. For instance, fast-paced, high-intensity music may signify happiness and excitement, whereas slow-paced, low-key music can indicate sadness and frustration (Dovorany et al., 2023). Through creating and listening to music, adolescents can easily comprehend and manage their emotions. Moreover, music serves as an instrument for emotional regulation, assisting individuals in alleviating stress, mitigating anxiety, and bolstering self-confidence (Aalbers et al., 2017). Research indicates that listening to music can lower cortisol levels (a stress hormone), thereby reducing stress (Emami et al., 2023). The theory of self-efficacy suggests that participation in music activities (such as learning an instrument or singing) can enhance individual self-confidence and self-esteem (Paolantonio et al., 2020).

3.2. Enhances social connections and sense of belonging

Music also provides social benefits, as it serves as a shared interest and experience and fosters a sense of connection and belonging. For instance, sharing musical tastes can strengthen friendships among young people and promote the formation of social identity (Yifan Zou and Wang, 2021). Additionally, participation in group music activities (such as orchestra or choir) can help adolescents develop teamwork skills and provide a robust sense of belonging and shared accomplishment (Cores-Bilbao et al., 2019).

3.3. Fuels creative and intellectual development

Music is considered a vital source of creativity. Through music composition and improvisation, teenagers can freely explore and express their thoughts, emotions, and imagination (Xia et al., 2023). Moreover, studies have shown that music training can positively affect intellectual development, particularly improvements in musical training correlated with mathematical, logical, and spatial intelligence (Kim and Chung, 2023). Although the specific influence of music on intellectual development continues to be studied, evidence suggests that adolescents involved in music activities perform better academically than those who are not.

4. Potential drawbacks of music

Despite the widely researched and acknowledged benefits of music, its potential disadvantages, particularly when improperly used, must be recognized.

4.1. Inappropriate usage of music

Excessive and improper use of music may contribute to hearing damage. Long-term exposure to high-volume music, especially through headphones or earbuds, increases the risk of harmful noise exposure, potentially resulting in temporary or permanent hearing damage (Hanson and Fearn, 1975). As a result of their limited self-regulation, adolescents may unconsciously listen to loud music, endangering their hearing health. Consequently, teenagers must be educated on safe music listening habits, including reducing volume, limiting listening duration, and using safe listening devices (Gopal et al., 2019).

Additionally, excessive music listening may distract attention, thereby affecting academic and work performance (Chen et al., 2023). Some argue that music enhances work efficiency, but research suggests that listening to lyrical music can distract attention, particularly when performing tasks requiring language processing (Vasilev et al., 2018). Furthermore, overreliance on music might lead to habitual addiction, which is characterized by an uncontrollable urge to listen to music, potentially affecting daily life negatively.

4.2. Potential negative effect of music content

The content of music may induce or exacerbate negative emotions and behaviors. For instance, lyrics containing violence, sex, discrimination, and negativity may negatively influence adolescents (Wang and Jiang, 2022). Studies have demonstrated that young people often interpret and internalize lyrics more than adults do; thus, the youth are more susceptible to these negative influences than adults (Martino et al., 2006).

The emotional tone of music may influence the listeners' emotional state. Some studies have indicated that listening to melancholic and intense music may induce or exacerbate negative emotions (Hahn et al., 2022). Though young individuals may use such

music to regulate or express their emotions, in the long run, excessive exposure to such music may detrimentally affect their mental health (Figure 1).

5. Implementing effective coping strategies

5.1. Selecting appropriate music genres

For adolescents, the choice of an appropriate music genre is critical, as it can satisfy both their personal preferences and psychological needs. This selection process should prioritize the adolescents' preferences and psychological needs and consider the esthetic value and educational significance of music. For instance, according to Maslow's hierarchy of needs theory, music can fulfill physiological needs (such as relaxation and stress relief), safety needs (like fostering a sense of security), social needs (enhancing belongingness and interpersonal relationships), esteem needs (expressing oneself and receiving acknowledgment), and self-actualization needs (such as creation and performance; Healy, 2016).

Furthermore, the esthetic value and educational implications of music should not be overlooked. Esthetic studies illustrate that music can trigger profound emotional experiences and spiritual exchanges and offer beauty appreciation. Education research suggests that music education can enhance holistic adolescent development, including intellectual, emotional, social, and moral dimensions (Ouergui et al., 2023). Thus, we should motivate teenagers to choose music of high esthetic and educational value, including classical music, ethnic music, and world music.

5.2. Establishing a healthy music environment

To safeguard adolescents' auditory health, parents must monitor volume and duration and avoid prolonged exposure to loud music. In addition, the content of music, particularly those expressing negative emotions, violence, discrimination, and other harmful elements, should be regulated. These responsibilities require the collaborative efforts of families, schools, and society at large. The home, being a teenager's first classroom, should see parents educating adolescents about the appropriate use of music, including volume control, time management, and selection of positive and healthy music content. Schools, as the secondary classroom, should guide adolescents toward appreciating high-quality music, thereby positively impacting music education. The society, being the broader classroom, should offer abundant music resources and services to cultivate a healthy musical environment for adolescents (Kortesoja et al., 2023).

5.3. Advocating positive music education

Music education plays a pivotal role in fostering adolescents' mental health. First, we should prioritize the design and teaching methods of music courses. Music syllabi should encompass diverse facets of music, including music theory, instrumental performance, vocal training, music appreciation, and music creation. Teaching

The establishment of a healthy music environment is pivotal in promoting adolescent mental health; this goal can be achieved through the collective efforts of families, schools, and society. Homes should provide safe and inviting music environments for adolescents. Schools should be equipped with music education resources and opportunities. Society should facilitate music activities and services to cater to adolescents' musical needs. Further, adolescents should be encouraged to actively engage in music activities, such as learning instruments and partaking in musical performances. These activities not only foster adolescents' musical aptitude and knowledge but also hone their social skills, boost self-confidence, and stimulate creativity (Phillips et al., 2019). In this process, the role of music educators is paramount. They bear the responsibility of imparting not only musical knowledge and skills to the adolescents but also helping them understand the spiritual value of music. They should facilitate the understanding of how music affects their emotions and mental states, as well as how to employ music as a tool to enhance their mental health (Steele and Young, 2011).

In conclusion, music significantly influences adolescent mental health. A concerted effort at all levels is required to cultivate a healthy musical environment for adolescents to optimally harness the positive influence of music and avert its potential negative effects.

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Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

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