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Abstract

The present review of literature aims to explore the therapeutic use of heavier forms of music including heavy metal, metalcore, and hardcore punk in a music therapy context to decrease mental health symptomology. Mental health symptomology explored within this review includes anxiety, depression, post-traumatic stress disorder (PTSD), and traumatic brain injury (TBI) among others. Most literature reviewed revealed institutional and individual stigmatization of heavy music genres; all literature reviewed served to challenge these stigmas. Even researchers who purported a negative bias towards both the general listening and playing of heavy music and the use of heavy music in clinical music therapy served to challenge stigmas against these genres with diligent research despite their stated biases. Two articles backed the use of heavy music with studies grounded in neuroscience. Many articles highlighted pioneering music therapy interventions incorporating heavy music, and others revealed potential therapeutic interventions that could utilize heavy music. These music therapy interventions would provide the best outcomes for clients who are fans of heavy music. Finally, two college professors purposefully used heavy metal music to intellectually stimulate student discussions on sociological and multicultural topics. These professors' findings served to reinforce heavy music as a powerful conversation starter and engagement, which also has implications for music therapy interventions in clinical group settings.

The Therapeutic Use of Heavy Music: Challenging Stigmas and Uncovering Interventions

This topic is deeply personal to me due to my experience with multiple sports-related concussions, which have led to mental health challenges, including depression, anxiety, and PTSD. I turned to heavier music genres like metalcore and hardcore punk to cope. During exercise, I rely on fast and heavy hardcore punk to boost motivation and maintain a steady pace, utilizing this genre's overall high beats per minute (bpm). To process feelings of loss in physical or cognitive ability, I play bass guitar and scream vocals in my metal/hardcore bands, finding unparalleled emotional release. These experiences enable me to approach other aspects of my life with more serenity and presence, such as working with clients during my internship, completing my schoolwork, and chores around the house. A large body of literature exists that supports music therapy's ability to reduce the symptomology that accompanies mental illnesses (Krauss, 2019). Clinicians can use music therapy to reduce the existential malaise (American Psychiatric Association, 2013) that often accompanies major depressive disorder (MDD). They can accomplish this by musically stimulating the dorsolateral prefrontal cortex, orbitofrontal cortex, and ventromedial prefrontal cortex areas of the brain (Feng et al., 2019). Clinicians can also utilize music therapy in line with a cognitive behavioral therapy (CBT) approach to assist people diagnosed with generalized anxiety disorder (GAD) to process their anxieties and live well in the moment (Gutiérrez & Camarena, 2015). Further, music therapy can help people diagnosed with post-traumatic stress disorder (PTSD) reduce their physical symptoms over time. Music therapists can facilitate clients with PTSD to shift between calm mental states using wooden instruments and heightened states using metallic instruments (Bensimon et al., 2012). There are

numerous novel, efficient, and cost-effective ways clinicians can employ music therapy to treat mental illness; such approaches are most efficacious when music therapists incorporate client-preferred music within therapeutic interventions (Mensah, 2019).

Many music therapy interventions have incorporated popular forms of music, including classical, pop, classic rock, and hip hop (Banzon & Leonard, 2023). The present literature review aims to explore the inclusion of heavier music genres, such as metal and hardcore punk, that have become rapidly more popular worldwide in recent decades (Seppi & Stoycheva, 2015). However, these music forms are still stigmatized, even within clinical settings where these genres could be used to help clients find relief from their mental health symptoms (Gowensmith & Bloom, 1997). For this paper, I define heavier music as that which features a driving beat; angry lyrics that are yelled, screamed, rapped vocals or those sung with intensity; and music featuring usually minor keys and incorporating distorted electric guitars, basses, and full drum kits. To contribute to the growing body of literature on music therapy and mental healthcare, this thesis explores the use of heavier forms of music within a music therapy context. Many authors of the articles and books reviewed here have either briefly touched on or entirely focused their papers on breaking the stigma on heavier forms of music that governmental, academic, and social bodies have pushed onto the public for decades. Another goal of this literature review is to uncover novel interventions using these genres that clinicians could use to reduce mental health symptoms that may accompany MDD, GAD, PTSD, and other diagnoses. The most important common thread in the literature reviewed is the call for more research on this topic. Finally, the following body of literature also reveals groundbreaking interventions and untested interventions

that could help push the field of music therapy forward by absorbing popular yet stigmatized genres and adapting them for clients who describe themselves as heavy music fans.

Numerous studies have challenged negative stigmas regarding heavy music and its resulting fandom. Olsen et al. (2023) conducted a scoping narrative review aiming to challenge negative stigmas associated with people who enjoy heavy metal and examined the psychological effects of heavy metal on fans and non-fans. They drew attention to positive mental health benefits fans enjoyed after individuals listened to their preferred genre. Thus, they effectively challenged negative stigmas. Olsen et al. (2023) also noted that antisocial tendencies some heavy metal fans exhibit were not the cause of these traits and behaviors. Adiasto et al. (2023) contributes to challenging negative stigmas by emphasizing participants choosing a hard rock song as a self-soothing selection after psychologically stressful events. Similarly, Gowensmith and Bloom (1997) found heavy metal fans did not rank any higher in anger levels compared to country music fans. They suggested music therapists and researchers conduct more scrutinizing genre studies on psychological influences with the goal of countering negative stereotypes about certain genres (Gowensmith & Bloom, 1997). Merz et al. (2021) challenged these same stigmas through demonstrating that fans of heavy metal did not rank higher in aggressive traits than control participants. Some researchers embraced negative hypotheses against heavy music and researchers were surprised when their results challenged their own assumptions. Shafron and Karno (2013) hypothesized elevated levels of mental health symptoms for heavy metal fans and found heightened levels of depression and anxiety, but no difference in anger levels between fan and non-fan participants. Baker and Bor (2008), a music therapist and researcher, hypothesized that adolescent fans who prefer heavy metal would be more likely to exhibit antisocial traits than

others. Instead, their results illustrated mental health benefits for fans, and they were unable to prove a causal link between listening to heavy metal and heightened anti-social traits.

This review could inform music therapists on incorporating heavy music into interventions and how this genre could support clients' mental health. Ollivier et al.'s (2019) study on higher and lower order cognition revealed that metal fans employ advanced cognitive processes when enjoying their favorite genre. This could have implications for music therapists aiming to motivate their clients to complete non-preferred tasks. Gowensmith and Bloom's (1997) study indicated that heavy metal is more physiologically arousing than other genres, like Pastor et al.'s (2023) study on different music genres' effects on injured brains. Precin (2011) highlighted profound mental health benefits after using a novel intervention that incorporated a client's vocal performance in a heavy metal band. Cheung and Feung's (2021) study may inform therapists who use receptive music therapy, given that songs had both indicated and contraindicated content. Angeler (2018) created an innovative intervention analogizing symptoms of bipolar disorder to heavy metal subgenres. This could help people diagnosed with bipolar disorder better understand their symptoms and best explain them to clinicians.

Kneer and Rieger (2016) illustrated that music therapists could help clients protect against death-related and other anxieties by helping them access their sense of belonging and cultural worldview. Clinicians could also draw interventions from Rowe's (2018) work, as many participants reported healthy mental health benefits related to their fandom, like emotional release, listening to metal instead of consuming drugs, and a sense of belonging to the metal community. Heavy metal has also been used to evoke provocative yet informative discussions and learning for students in collegiate settings (Ahlkvist, 1999; Guberman, 2021). These cases

may inform music therapists working on interventions for clinical groups to provoke deeper discussions. There is a demonstrably increasing need for clinicians to utilize heavier forms of music within music therapy contexts that mental health professionals must take seriously (Jennings, 2022). There is potential for interventions to incorporate heavier music for clients' benefit, which must be implemented with care. While these genres benefit heavy music fans, some studies revealed negative mental health benefits for non-fans (e.g., Olsen et al., 2023). Thus, incorporating heavy genres into music therapy must be studied further.

Review of Literature

Challenging Negative Stigmas

Olsen et al. (2023) conducted a narrative review examining the psychological effects subgenres of heavy metal had across different clinical populations. They analyzed the counteracting effects of these genres on both fans and non-fans. Researchers called attention to what they considered flawed research on heavy metal and subgenres in the 1980s and 1990s as their reasoning for conducting this research. They noted that heavy metal and similar genres are still banned in some clinical settings because of faulty research as those studies were conducted with non-fans. They also illustrated that some heavy music fans can be misdiagnosed due to negative associations with undesirable traits such as antisocial behavior because of previous research. Olsen et al. (2023) also uncovered many mental health benefits for fans of heavy music, including a sense of belonging and community after going to concerts within heavy metal fandom, feelings of kinship and goodwill towards all humans after listening to their preferred heavy music genres, and emotional release after listening to this music. While they found some correlations between heavy music fans and antisocial behaviors like aggression, disrespect

towards women, anxiety, and depression, Olsen et al. (2023) stressed that none of the studies they reviewed were able to point towards heavy music fandom as the cause behind these behaviors. Olsen et al.'s (2023) narrative review helped correct several flawed research studies from the 1990s that had contributed to negative stigmatization of heavy metal and its fans. The authors called attention to previous studies having exposed non-heavy metal fans to a non-preferred genre of music. In more recent studies, heavy metal fans were found to experience numerous pro-social mental health benefits after listening to their preferred genre of music, including feeling a sense of community, experiencing healthy emotional release, and adopting a resilient outlook on life. These benefits have profound implications for utilizing heavy music in clinical settings, and many of these benefits have been found to increase fans' sense of belonging, thereby increasing feelings of safety in line with Porges' (2011) polyvagal theory. Olsen et al. (2023) also countered popular narratives that listening to heavy metal could cause antisocial behaviors and merely proved a high correlation which further challenged assumptions based on stigmas against heavier forms of music.

Adiasto et al. (2023) conducted a study examining participants' use of self-soothing mechanisms. Music listening ranked high on participants' lists of self-soothing activities, thus researchers chose to examine common features of music listeners' song choices across genre. They found that these commonalities possessed similar time signatures, modes, and bpm that were represented across many different genres. The genres represented included electronic dance music (EDM) and hard rock, including the band Led Zeppelin (Led Zeppelin, 1968-1980) in the participants' lists. They concluded with a call for more research into common features of self-selected music across populations after experiencing stressful events. Adiasto et al. (2023)

demonstrated that listening to preferred music can have extensive mental health benefits for people after stressful events especially people experiencing symptoms in line with a GAD or PTSD diagnosis (American Psychiatric Association, 2013). Preferred music ranked consistently in the top five list for participants to de-stress after anxiety-provoking events, while having positive implications for the use of client preferred music within clinical settings. The inclusion of distinct musical features like tempo and mode across musical genres, including hard rock for soothing songs, showed that the clients' preferred music should take precedence in a clinical music therapy setting, even if clients prefer heavier, often stigmatized forms of music.

Merz et al. (2021) attempted to disprove the notion that a preference for heavier forms of music such as heavy metal, punk rock, and alternative rock, is not a causal or a correlational factor behind heightened aggression. Researchers recruited a diverse sample of 400 participants remotely from different regions of the United States. They employed a variety of assessments accounting for musical genre preference, psychopathology, and several for trait anger. A preference for intense music was not a causal or correlational factor for participants with higher levels of anger relative to the sample (Merz et al., 2021). While a preference for intense music had a high correlation with elevated psychopathological symptoms, fans of all other genres also had prominent levels of psychopathological symptoms. Further, intense music can have therapeutic mental health benefits for fans of these genres including emotional release and catharsis. Merz et al.'s (2021) study directly contradicts and challenges harmful stereotypes and stigmas against fans of heavier forms of music in a scientifically rigorous manner. They noted a bias against stereotypes that associate aggressive traits with intense forms of music, but still used a scrutinizing method of wide scope to support their hypothesis. The elevated level of non-

violent psychopathology perhaps speaks to a wider mental health crisis in the United States over recent years. This study also cited literature with positive implications for music therapists to include heavier forms of music to promote healthy methods of emotional release with fans.

Gowensmith and Bloom (1997) analyzed the effects that listening to heavy metal music had on people's anger and physiological response levels. The authors referenced negative biases and stigmas against the heavy metal genre fostered by groups such as the Parents Music Resource Center (PMRC) and Parent Teachers Associations (PTA) across the United States as a motivating factor for their research. These groups worried that some heavy metal bands featuring aggressive thematic lyrical material like homicide, suicide, and obscene and gory imagery on album covers as their reasons for trying to get this genre banned. The authors found many inconsistencies that aimed to prove a causal relationship between listening to heavy metal and higher anger levels, supporting their counterargument of previous studies. These studies were flawed in that they were not conducted with fans of the genre. To counter biased research, Gowensmith and Bloom (1997) conducted the first study using heavy metal fans as participants. They recruited 137 male participants divided into self-identified country music fans and heavy metal fans. The researchers played songs from both genres of music for participants and then in a posttest they asked participants a series of questions regarding their experience in the experiment. Physiological arousal was found to be more common in all participants during the posttest after listening to heavy metal music. The researchers also found that heavy metal fans were not inherently angrier than fans of country music. In fact, country music fans reported higher levels of frustration after listening to heavy metal music than heavy metal fans did after listening to country music. The authors of this study concluded with a call for more research on

genre preference. They stated that their study disproved the notion that being a fan of heavy metal made a person more likely to experience anger as a personality trait. This landmark study was the first of its kind to examine the psychological effects listening to heavy metal had on fans of the genre as opposed to just conducting their study with random participants. They found that heavy metal fans had no more trait anger than fans of other music genres. This finding is important for challenging common notions that heavy metal fans are angrier than fans of other genres. Further implications towards using heavy forms of music for music therapy treatment were unveiled in the revelation that heavy metal was found to be more physiologically arousing than other genres.

Shafron and Karno (2013) aimed to support their theory that listeners of heavy metal would rank higher in emotional dysphoria in anxiety, depression, and anger compared to non-heavy-metal fans. The authors cited previous studies showing negative traits associated with listeners of heavy metal, such as juvenile delinquency, and problematic thematic material, such as suicidal ideation and violence, with the lyricists of the music. These authors hoped their study might prove that heavy metal deserved the stigmas that had been brought upon it by politicians, parental rights groups, and others in the early 1990s. The authors also noted that stigmatizing studies from the 1990s needed an update, as many subgenres that were not popular then such as metalcore, nu metal, and screamo, have come into prominence. The researchers used mental health measuring tests to survey a diverse group of 542 community college students, of which 315 identified as heavy metal listeners, with the remainder acting as the control group. For more thorough inquiry into genre preferences and mental health associations, the researchers included heavy metal subgenres like death metal, hardcore, and metalcore within their initial polls. To test

students' depression levels, researchers used the Beck Depression Inventory II, to test students' anxiety levels they used the Beck Anxiety Inventory, and to test students' trait anger levels they used the Spielberger STAXI II. The researchers found a correlation between heavy metal listeners and anxiety and depression levels and noted that heavy metal listeners did not exhibit a statistically significant difference on anger levels. The authors noted that this study did not empirically prove that being a heavy metal fan caused their mental health symptoms. They also called for more research on this topic. Shafron and Karno (2013) disproved commonly accepted stigmas regarding heavy metal and its fandom despite a stated desire to prove negative attitudes towards heavy metal to be legitimate. Shafron and Karno (2013) did not find heavy metal fans to be angrier than the control group, which holds clinical significance for treating heavy metal fans. They also found no causal relationship between listening to heavy metal and elevated depression and anxiety symptoms. As a result of these findings, music therapists can treat heavy metal fans using their preferred genre if they pay detailed attention to lyrical content, which music therapists already contend with while using other popular genres.

In a study, Becknell et al. (2008) examined the physiological effects that heavy metal had on female college students. The researchers aimed for female participants to cut down on demographic variables, as it was not yet known if gender variance would cause differential responses to the music. In some previous research, a preference for heavy metal was a variable factor, so they aimed their study towards exclusively female non-fans of heavy metal. The researchers recruited 18 White female participants from an introduction to psychology class. Authors employed an ABAB method, meaning they first exposed each participant to five minutes of silence and then a heavy metal song, then five minutes of silence, then a heavy metal

song. They found that the heavy metal exposure activated tension within each participant's jaw muscles but that exposure to heavy metal for non-fans did not lead to demonstrable differences in skin temperature, sweat profusion, or heart rate. They concluded with a call for more research involving variables such as examining the physiological effects of heavy metal within male participants, fans of the genre, and more diverse audiences. They also called for research using other popular genres with college students like EDM and rap. While one stressor was revealed in this study, other stress factors were found to not be negatively correlated with heavy metal music. Thus, while music therapists must exhibit some caution when bringing in interventions incorporating heavy metal music, the universally psychologically damaging effects that some earlier studies had postulated were exaggerated (Becknell et al., 2008). Becknell et al. (2008) did not demonstrate a bias in favor of heavy metal music and served to continue the trend of challenging previous erroneous studies that were unfairly biased against heavy metal and other forms of heavy music.

Baker and Bor (2008) reviewed literature to explore whether music preference could determine mental health status in adolescents. The authors referenced violent incidents that were thought by media and some parental and government groups to have been caused by the music that the perpetrators listened to. Metal bands were implicated in some of these violent and tragic incidents. Their literature review included studies that indicated that participants who listened to violent lyrical content were likely to engage in antisocial behaviors. One study they reviewed found that participants who listened to songs featuring violent lyrical content were more likely to think violent and inappropriately aggressive thoughts than those who listened to the same genre absent violent lyrical content. Baker and Bor (2008) found some negative correlations involving

heavy metal music and higher rates of introversion, substance abuse rates, and misogynistic attitudes toward women, yet also found studies revealing that some people experience positive affect and catharsis after listening to heavy metal. They highlighted the high rates of antisocial behaviors correlated with adolescents who listen to rap (violence), heavy metal (suicidal ideation, and substance abuse), EDM (substance abuse) and even pop music (over conformity, gender issues). They noted that more studies need to be done in this realm to uncover any causal effects that listening to these genres may have on adolescents' mental health.

Baker and Bor (2008) adopted a preliminary negative bias against extreme forms of music with an eye toward aggressive lyrics as a revelatory factor for antisocial traits within young people. The authors found that fans of extreme music were likely to experience positive mental health benefits related to healthy emotional release after listening to their preferred genres. Moreover, the authors found negative traits associated with fans of all genres that they researched, including the more overall accepted genre of pop music. This review challenged stigmas towards heavier forms of music and showed that music therapists should incorporate any genre that suits the client if the lyrics to requested songs are not clinically contraindicated. They were not able to support a causal link between genre preferences and antisocial character traits, effectively challenging stigmas regarding heavier music genres and calling for more research on the subject.

Neuroscientific Evidence for Intervention Relevancy

Ollivier (2019) aimed to evaluate the lower and higher order cognitive processes that metal fans and non-metal fans exhibited. Their 332 participants were divided into a control group of non-metal fans that ranked pop music as highly pleasing on a survey and metal music as low

on a survey and an experimental group consisting of metal fans that ranked metal music as highly pleasing and ranked pop music as low on the same survey. The first experiment had participants rank a mix of auditorily threatening and non-threatening noises as disturbing or pleasing. These auditory noises consisted of "vocal, instrumental, and alarm sounds" (Ollivier, 2019, p. 3), including isolated sounds such as distorted guitars and vocal yells that are common in metal music, but presented to both groups in a rapid and jarring manner. The second experiment consisted of testing participants' reaction times to the same sounds from the first experiment coming from different directions. This experiment disproved the hypothesis that metal fans' cognitive processes are dampened compared to those of the control group as the metal fans ended up reacting more quickly and negatively to the more auditorily threatening sounds. The third experiment involved testing participants in higher order cognitive processes with a complex visual search task while listening to both pop songs and metal songs. A statistically insignificant number of metal fans found this task easier to complete while listening to pop music. Experiments one and two demonstrated that heavy metal fans do not have different lower order circuitry as compared to non-metal fans. Regarding experiment three, the authors stated that in conjunction with their results from experiments one and two the fact that performing a demanding task while listening to metal did not notably alter metal fans' preference for the genre means that metal fans utilize higher order cognition to enjoy this genre that can be unpleasantly abrasive for non-fans. That is, metal fans employ higher order cognitive processes like that of fans of roller coaster rides and high intensity emo music.

The complex brain processes behind extreme or heavy music fandom the authors showed confirmed that fans of these genres are not likely to have dulled threat responses. They illustrated

that fans of these forms of music employ higher order cognitive processes to enjoy sonically threatening music. These findings suggest that fans of heavy music may be less likely to engage in antisocial externalizing behaviors because of their control over higher order thinking processes. The finding that extreme music fans were able to complete a cognitively demanding task while listening to their preferred music has clinical implications for music therapists providing clients with coping strategies for getting through demanding non-preferred tasks.

In a novel pilot study, Pastor et al. (2023) analyzed the injured brain's differential responses to three types of music, including heavy metal. Participants (N = 6) included five female and one male patient, who were under Sedo-analgesia due to various brain injuries and exposed them to diverse types of music. The authors noted that their study was novel, as all previous studies uncovered elicited responses using patients' preferred music, white noise, or classical music. The three types of music used to stimulate patients' brains were classical, dodecaphonic, and heavy metal. The researchers analyzed participants' brain waves using electroencephalograms (EEG). The researchers noted they did not analyze the characteristics of the music such as rhythm, tempo, and key that might lead to brain responses. The authors also noted that they randomized the sequence of songs played for participants to eliminate any potential bias in their responses to the stimuli. Results indicated opposite responses within the brain for classical music and heavy metal. Classical music decreased bioelectrical activity in the brain, acting to sedate patients further, while heavy metal increased bioelectrical activity in the brain. Heavy metal was the only music that increased bioelectrical activity in brain regions that were not active prior to the stimuli being applied. Dodecaphonic music also increased bioelectrical activity in the brain, but not as much as heavy metal. The authors ended with a call

for more research and noted that uniquely heavy metal and dodecaphonic music could be used for brain rehabilitation for patients who had suffered brain injuries. They also noted that all forms of music could be used for specialized medicine in an advanced music therapy context. This study has groundbreaking therapeutic implications for music therapy and more specifically, neurologic music therapy (NMT). NMT treatment involves multiple distinct evidence-based music therapy protocols used by neurological music therapists to treat brain injuries (Thaut, & Hömberg, 2014). Notably, heavy music had positive activating effects on people who did not self-identify as heavy metal fans. The revelation that heavy metal music activated brain regions that were previously inactive in research subjects and increased brain activity in general should be heavily researched for the benefit of brain-injured clients. This study also further proved the physiologically arousing factors of heavy metal music, which has clinical relevancy for treating clients with MDD.

General Interventions and Informing Potential Interventions

Precin (2011), an occupational therapist, used a creative music therapy intervention to help a 20-year-old woman, referred to with the pseudonym Jakee, overcome her childhood trauma. Jakee was diagnosed with post-traumatic stress disorder (PTSD) and depression after suffering years of physical, mental, and medical abuse at the hands of her parents. The author utilized a specific three-part trauma healing theory. The first part revolved around creating a healing therapeutic relationship, the second part involved delving into and remembering the trauma or traumas, and the third part emphasized rejoining the outside world. Jakee performed vocals in a heavy metal band, so the occupational therapist asked the client, after a few introductory therapy sessions, if she would like to participate in a novel form of therapy

involving Jakee, singing vocals with her heavy metal band during live concerts to put her pain and trauma into her live performances for processing purposes. Jakee agreed and through this therapy was able to utilize the live band's audience to heal her parental wounds, focus on pain processing to healthily process her trauma, and her post-concert therapy sessions to re-solidify her shattered sense of self. Unlike in every previous attempt at therapy, Jakee did not terminate early and reported feeling calmer and as if she had more control over her own life. When a fan of heavy music who had experienced mental health challenges due to PTSD and depression was able to utilize her music preferences in a clinically creative manner with the help of an occupational therapist, she experienced significant and lasting mental health benefits (Precin, 2011). Jakee's exact form of treatment would prove challenging to replicate in most clinical settings due to budget constraints, though parts of this treatment could be approximated. Karaoke featuring a live music element in the form of microphones, amplification, and a music therapist or multiple music therapists using electric guitars, and drum sets to recreate as much of a live band feeling as possible might provide clients with similar benefits.

Cheung and Feng (2021) conducted an arts-based study analyzing 1,152 metal songs to understand how vocalists create meaning within their lyrics. The authors used a control consisting of the lyrics to 692 pop songs, noting how their study was unique, as they incorporated many metal subgenres. They mentioned that metal and metal fandom as a global phenomenon had a vast history of institutional oppression. The researchers aimed to counter the narratives of these oppressive institutions with examples of positivity and mental health benefits that came with being a part of the metal community. They utilized the attitude system to analyze lyrics--an emotional measuring system--and valued words in relation to critical judgment,

appreciation, and emotional responses. The most common themes for the songs were condemnation of social injustice, fear, and metaphorical death. The researchers suggested that these lyrical themes were likely to help performers and fans experience healthy emotional processing and help them deal with anxieties. Out of 11 words that showed up more often in metal, control, catharsis, and emotional release were the most common themes that showed up within these words. The authors also noted that some negative themes, such as self-destructive thoughts, alienation, and religious criticism, were present in the lyrics, but concluded that the positive lyrical themes outweighed the negative themes (Cheung & Feng, 2021).

This study suggests implications for the use of receptive music therapy for heavy music fans. Several heavy music songs have lyrical content that may not be clinically appropriate for fans who experience hopelessness or suicidal ideation. However, catharsis, triumphing over injustice, and processing legitimate fears could be helpful for clients in a receptive music therapy context. This study points to the great care music therapists who want to incorporate heavy music songs must exhibit when selecting music from this genre when working with heavy music fans. If a song is lyrically contraindicated, a skilled music therapist would be able to find a sonically similar song with a more positive or at least neutral message for the client's benefit.

In an arts-based study, Angeler (2018) explored the implementation of an innovative music therapy intervention with people diagnosed with bipolar disorder. The author aimed to bridge psychiatry and music to help both people with bipolar disorder and the greater population better understand the symptoms that accompany this complicated diagnosis. The author highlighted the choice of heavy metal for this intervention because of high rates of mental illness in the heavy metal community and because both mental illness and heavy metal are unfairly

stigmatized. The author described his intervention as using heavy metal subgenres as an analogy for the varied symptoms that accompany a bipolar disorder diagnosis, using death and speed metal to approximate the chaotic states of mania and hypomania. Angeler (2018) highlighted doom metal and other slow, driving, and powerful subgenres to depict all-encompassing depressive state symptoms like lethargy, suicidal ideation, and a sense of overwhelming emptiness. He used the slow tempos that utilize double kick drumming consistent with death doom and death metal songs to depict both chaotic and depressive energy that accompanies mixed states. Angeler (2018) speculated that his unique method could be used by music therapists with other genres of music and mental health diagnoses, stating that his innovative theoretical intervention could both help the public understand mental illness diagnosis better and those diagnosed with bipolar disorder better understand their own internal worlds and describe their symptoms more accurately to clinicians. This innovative form of therapy provides music therapists with a template for treating patients who may desire to show their therapists and/or identified safe people their internal worlds in reference to their experiencing of mental health symptoms. This intervention could be used for other applications, such as psychoeducation for clients, or therapists better understanding non-verbal clients with an appreciation for music. This intervention could also be used for teaching therapists and music therapists what clients with various diagnoses even beyond bipolar disorder may be experiencing.

Kneer and Rieger (2016) aimed to experiment and analyze heavy metal fans who used the genre as a protectorate against death-related anxiety. The authors cited terror management theory and how proponents of this theory noted that cultural worldview and self-esteem can help protect against fear of death. The researchers described this fear of death as mortality salience, which

they defined as contemplation and fear of one's own inevitable death. They also pointed towards the innovativeness of their own study by highlighting that the only previous studies to cover cultural artifacts as a protectorate against mortality salience were done using film and television. In these previous studies, researchers found that meaningful movies and television shows (even ones that involved themes of death) successfully activated participants' cultural worldviews and self-esteem in response to their mortality salience being activated. Kneer and Rieger (2016) conducted two studies that used metal related words as well as the songs "Paranoid" by Black Sabbath (Black Sabbath, 1970) and "Angel of Death" by Slayer (Slayer, 1986) as metal artifacts. They used an audiobook as a control and recruited exclusively heavy metal fans as participants in the first study. The researchers first showed participants 20 words both concerning metal and unrelated to metal and asked them to rank these words on a scale of positive to negative as a baseline. They then asked participants to write a reflection on death for five minutes, afterwards exposing the control group to the audiobook and the experimental group to the two metal songs and 20 new heavy metal and unrelated words. Participant responses supported that heavy metal fans' cultural worldviews acted as a protectorate against mortality salience due to no significant difference in word rankings before and after both stimuli were applied. The second study was set up similarly to the first but concerned self-esteem activation. The two main differences in this study were inclusion of non-heavy metal fans in addition to heavy metal fans and the inclusion of a survey with both positive and negative adjectives that participants ranked with how applicable or non-applicable these adjectives were to them. The survey was given before the stimuli--the same stimuli presented as in the first study--was applied. As researchers were evaluating for self-esteem in relation to cultural worldview as opposed to mortality salience, they omitted the essay

on death portion used in study one. Researchers found that heavy metal fans who listened to heavy metal did not need to activate their cultural worldview to achieve positive results, while non-fans and fans who did not listen to heavy metal songs did. The researchers noted that for fans, heavy metal increased their sense of belonging and meaning and as a result could be used as a buffer for these fans against anxieties related to death or mortality salience. They ended with a call for more studies using both heavy metal with more variables and other genres of music with strong and enthusiastic fandoms.

Music therapists often draw upon resource-oriented techniques when working with clients to help them cope with the symptomology of various mental illnesses. This study showed that activation of metal fans' cultural worldview can offer many positive mental health benefits such as boosting self-esteem and acting as a protectorate against death related anxieties. By drawing upon heavy metal fans' inner resources, music therapists have a powerful and cost-effective method of helping clients cope with symptoms of mental illness. Invoking heavy metal fans' sense of cultural worldview and a plethora of mental health benefits was as simple in this study as playing two prerecorded heavy metal songs for heavy metal fans.

Rowe's (2018) work based on qualitative research with 28 participants examined young people's relationship to heavy metal music and how they used heavy metal and related subgenres to process tough life experiences during adolescence. The author aimed to counter harmful stereotypes of heavy metal fans within the media and academic literature. Many of the male participants reported first using heavy metal for an emotional protectorate against bullying in their high school years. Many individuals referenced the subgenre of nu-metal and specifically the band Korn (Korn, 1993-present) and their vulnerable, angsty lyrics, driving down-tuned

guitars and thundering drums as having first drawn them into the genre. The male participants appeared angrier when discussing bullying and heavy metal than female participants. Meanwhile, female participants reported using heavy metal for emotional release, to process a sibling's death, and the visceral experience of seeing metal bands play live. All participants noted that heavy metal music inspired them to meet challenges, and an affinity for do-it-yourself or DIY culture, citing getting their own recordings pressed on CDs or tapes, and printing their own band t-shirts as examples of this culture. Most participants reported using heavy metal instead of substances to process tough experiences and frequently compared the benefits of listening to heavy metal to that of ingesting a drug. All participants acknowledged the role heavy metal played in both relaxing their minds and energizing them when they needed to complete undesirable tasks such as chores or homework. The third chapter contained participant revelations on embracing heavy metal and related subgenre culture as an intimidating factor and primarily a deterrent against bullies and more general societal norms in some cases. By becoming visibly, a part of the metal community, most participants who had experienced bullying beforehand observed that their tormentors usually ceased bothering them shortly after they adopted heavy metal personas. Participants created heavy metal personas by putting on black band t-shirts featuring morbid imagery and intimidating lettering and band logos; some of them also grew their hair out and some of the self-described black metal fans adorned their faces with corpse paint or white and black face paint to emulate the look of a corpse. Participants described a heavy metal identity as a reclamation of power. Participants' ardent desire to not interact with violent and taunting peers countered harmful popular narratives that described heavy metal fans as violent and overly aggressive people. Meanwhile, multiple participants

viewed their heavy metal identity as a nonviolent political statement against inescapable oppression and injustice within their school environments. Rowe's (2018) fourth chapter examined participants' sense of belonging and community within the heavy metal and related subgenres scenes both online and in physical spaces. Notably, almost all participants reflected on their origins of becoming and embodying metal fandom as individuals in the comfort of their own bedrooms having found the music communities almost exclusively online. Many participants mentioned becoming enamored with the metal community after attending live concerts and witnessing how people in mosh pits cared for one another by picking up fellow concert attendees who had fallen to the ground in the chaos or by clearing the way for a metal fan in a wheelchair to crowd surf. One participant noted how much witnessing the empathy exhibited during these live concert moments juxtaposed with the daily schoolyard bullying he had experienced and witnessed. Rowe (2018) described that 11 participants were members of the lower class and found entry into metal fandom through nu metal and eventually settled into identifying as deathcore and metalcore fans. These participants (n = 11) spoke highly of all other metal fandoms and had an optimistic and welcoming outlook towards other metal fans in general. Nine participants identified as middle class and found their way into the metal community through nu metal and heavier grunge bands. These participants (n = 9) professed progressive, thrash, and death metal as their preferred subgenres and all had similarly positive outlooks on all metal and subgenre fandoms. Eight participants identified as upper class and found their way into metal fandom through hardcore punk. Almost all of these participants identified as black metal fans and most professed elite and classist attitudes towards other metal fandoms, with some participants calling metalcore and other subgenre fans classist epithets such

as ghetto and poor. Many participants favorably compared listening to metal to a drug, which could inform music therapists who treat heavy music fans with substance abuse issues. This notion also challenges negative stereotypes about heavy music fans and substance abuse. Heavy music has a rich culture and community that can be accessed from a computer; reminding clients of this community could help music therapists treat heavy music fans to increase their sense of belonging, therefore increasing feelings of safety. Finally, in school-based settings, music therapists could help bullied clients who are fans of heavy music lean into their fandom to nonviolently combat harassment by embracing an identity that may deter bullying.

Classroom Based Settings and Interventions

Ahlkvist (1999) presented a model for using heavy metal music in the classroom to teach a collegiate introductory sociology course. The author first critiqued passive learning methods for sociology and highlighted teaching methods that require more active participation from students as a more effective way to teach. Ahlkvist (1999) noted that teachers have partially taught sociology using music since the early 1990s, but his teaching method would delve more in depth than the examples he cited. Ahlkvist (1999) proposed "using sociology as an analytical tool" (p. 3). The author chose heavy metal as the genre to use while teaching sociology because he thought that this genre would encourage high student engagement due to its popularity and the polarizing effect it has on listeners and non-listeners of the genre. In this course's first phase, the author presented metal as a cultural object/artifact, showing students heavy metal album covers and asking them to look for common themes and imagery. In the second phase he presented a historical overview of heavy metal, including societal factors that led to its existence and asked the class to listen to heavy metal songs and analyze the lyrical content of these songs. The final

phase of this unit asked students to find the sociological contexts in which fans originally listened to this music. Through his cultural analysis of heavy metal, the author was able to touch upon many sociologically appropriate subjects, such as the struggles of the working class, misogyny within heavy metal, and racial struggles through comparing similar negative stereotypes and reactions about rap against heavy metal. This professor helped students better understand sociology with a novel technique incorporating a polarizing and simultaneously intellectually stimulating genre. The mostly positive feedback this author has received from all students, including self-identified non-fans of heavy metal, points to heavier genres' increased popularity and acceptance in recent years. The cultural analysis of heavy metal objects and artifacts has specific clinical applications and could be utilized by therapists and music therapists who may work with groups in a therapeutic school setting. For these students, the powerful imagery evoked varied positive and negative emotional responses, which, in a different context, could be optimized to facilitate therapeutic discussions and encourage empathy.

Guberman (2021) argued for the exploration of heavy metal in a collegiate classroom to help teach students intercultural competencies. The author emphasized that students often do not develop intercultural competence by studying abroad without supplemental classes to develop these skills. He also stated that students without means to study abroad should still work on these skills in a globally interconnected world. He then noted that in his course's development he consulted Fink's (2013) course design model, which combined affective, interpersonal domains, along with metacognition for an immersive classroom experience. Guberman (2021) cited the rising global popularity of the genre, a complex and rich musical history, and a controversial social history as his reasoning for exploring heavy metal as a genre. The complex social history

and class discussions allowed students to explore topics relevant to intercultural competence such as working-class politics, gender and sexism, and the social conditions that led to the rise of heavy metal within different countries. Guberman (2021) found that when he included live discussions with classes from other countries, the topic of heavy metal led to more student engagement than when he tried this with classes that did not have a specific area of focus. He concluded by noting that the focus on heavy metal in an international context helped some students develop empathy via expanding their worldview and having non-heavy metal fans engage in a genre that they otherwise might have ignored. Even for non-fans of heavy music, the focus on heavy metal within a classroom setting encouraged salient discussions. The inclusion of heavy metal and relevant subgenres within a music therapy context could serve as an entry point into deeper therapeutic explorations within a clinical group setting, as heavy metal has repeatedly been shown to evoke strong feelings both positive and negative. Ideally, at least a few clients in these potential groups should be self-identified heavy music fans to generate deeper discussions across polarizing views and facilitating safe and supervised rupture and repair moments.

Discussion

Challenging Negative Stigmas

Multiple studies effectively challenged the negative biases and stigmas that accompanied heavy metal and related genres since these genres emerged. This evidence helps support the argument that heavy forms of music should be included in forms of music therapy to treat symptoms of mental health diagnoses. Heavy forms of music were banned from clinical settings because of flawed and negatively biased research studies from the late 1980s and early 1990s. A narrative review (Olsen et al., 2023) challenged stigmas by examining biased literature from the

early 1990s and more recent literature to challenge academically based stigmas against heavy metal and subgenres. Olsen et al. (2023) described flawed literature as that containing research done with non-fans of heavy metal and reporting easily predicted negative outcomes. They further fought stigmas by pointing towards more recent studies that highlighted the positive mental health effects that heavy music fans received when listening to their preferred genres like emotional release and feelings of goodwill towards others. In a study on self-soothing after experiencing stressful situations, Adiasto et al. (2023) helped to erode stigmas against heavy music by drawing attention to a hard rock band, Led Zeppelin (Led Zeppelin, 1968-1980), being chosen by multiple participants as a self-soothing music choice (Adiasto et al., 2023). The inclusion of this band points toward the need to treat music therapy clients using their preferred genres of music, regardless of unscientific negative assumptions about the genre for optimal mental health benefits. Merz et al. (2021) confirmed that heavy metal fans did not rank higher than others in aggressive tendencies. They uncovered mental health benefits for fans of the genre like emotional release, noting that heavy metal fans had elevated levels of non-aggressive mental health symptoms like anxiety and depression. A neutrally biased study on heavy metals' effect on anger and arousal disproved the notion that heavy metal fans are more likely to be angrier than non-fans (Gowensmith & Bloom, 1997). This study concluded that heavy metal music was physiologically arousing for both fans and non-fans of heavy metal.

Even some negatively biased yet ethically conducted studies against heavy music countered some of these researchers' own stated negative assumptions about these genres. A study that aimed to prove that heavy metal fans would rank higher in mental health symptoms with a special mention of trait anger was only able to prove higher levels of anxiety and

depression for fans (Shafron & Karno, 2013). This study also did not prove that heavy metal songs were a causal factor behind elevated mental illness symptoms. One negatively biased study overshot the symptoms of stress that the writers assumed would be present in college women who identified as disliking heavy metal before they conducted their study (Becknell et al., 2008). The authors only uncovered increased tension in the jaw muscles and were not able to find elevated levels of sweat, heart rate, or skin temperature in their subjects as they had hypothesized. Baker and Bor (2008) first cited mass murders and suicides associated with metal artists to prove that young fans listening to angry forms of music were more likely to engage in antisocial behaviors than their peers. The authors instead discovered many positive mental health benefits such as catharsis for fans of heavy metal and related subgenres. They noted elevated levels of mental illness for youth across genre preferences such as pop music and hip hop, which may speak to a larger mental illness crisis among American young people.

Neuroscientific Evidence for Intervention Relevancy

Most heavy music fans may have elevated cognitive control and can distinguish between the calculated harsh sounds of their preferred genres and threatening noises (Ollivier et al., 2019). The thrill fans get from their preferred music was like that of fans of rollercoasters. Heavy music fans' ability to differentiate between entertainment and real danger on a cognitive level bodes well for those who may still be genuinely concerned about perceived psychologically damaging effects of heavy music for fans. The results of the final task that Ollivier et al. (2019) asked participants to engage in could help point towards helpful interventions for clients who identify as heavy music fans. Fans completed a task that required higher-order brain processes and still professed that listening to heavy music was preferable overall. Music therapists may

construct interventions for clients by instructing these clients to listen to their preferred genres while completing non-preferred tasks or assign clinical homework to do so. This intervention could prove particularly helpful when working with clients with MDD. Pastor et al. (2023) highlighted positive associations that heavy metal music may have with treating brain injured clients with NMT. Heavy metal was found to arouse regions of the brain in brain injured participants where activity was thought to have become semi-permanently dormant. Like Gowensmith and Bloom's (1997) results, heavy metal was more physiologically arousing than other genres in the study. Therefore, heavy metal should be incorporated into the NMT sphere.

General Interventions and Informing Potential Interventions

The literature reviewed revealed many novel and potential interventions incorporating heavy music genres. One of these interventions showed exemplary results for the real-life client who was treated with the therapist keeping an eye on the client's favorite music genre (Precin, 2011). The client, Jakee was abused by her mother and father since she was a young child, which led to debilitating mental health conditions associated with PTSD and MDD. She had prematurely terminated all previous forms of psychotherapy until an occupational therapist opted to treat Jakee using her preferred genre of music, heavy metal. Jakee was then able to healthily process her trauma through live concerts with her heavy metal band and processing sessions with her occupational therapist about these concerts shortly after. Jakee released her emotional trauma and moved forward with her life after receiving this innovative form of music therapy. Live or partially live heavy music experiences can be replicated cost effectively in a clinical space for clients with similar needs using speakers, electric guitars, microphones and hand drums or a cheap drum set. While heavy forms of music should be incorporated into music therapists'

interventions when clinically appropriate, caution must be used with attention to lyrics. One analytical study found that many heavy metal songs feature lyrics about negative and clinically contraindicated content like suicidal ideation or hopelessness (Cheung & Feng, 2021). However, many heavy metal lyrics also contained positive content like triumphing over injustice and healthy emotional catharsis. When using receptive music therapy techniques, music therapists should pre-screen when asking heavy music fans to pick songs. A skilled music therapist would be able to point to a sonically similar song that features positive lyrics or rework the lyrics to the client selected song if the lyrics are clinically contraindicated. Angeler (2018) developed a creative intervention analogizing symptoms of OCD to that of heavy metal subgenres. Music therapists could use this intervention with fans of heavy music diagnosed with other mental health disorders as well like GAD, MDD, and PTSD. It could be helpful for emotional processing, empathy, and psychoeducation.

Relatedly, Kneer and Rieger (2016) showed how heavy metal fans can activate their cultural worldview and self-esteem to both buffer against death-related anxieties and experience drastic mental health benefits. Heavy metal fans merely needed to listen to two heavy metal songs to access their cultural worldview or sense of belonging and enhance their own self-esteem. Playing heavy songs for heavy music fans is a very efficient and cost-effective way for music therapists to treat clients who identify as such. In Rowe's (2016) book on youth heavy metal fandom that was written from an empirical study, interventions could be pulled from the literature (Rowe, 2016). Participants likened listening to heavy metal to that of consuming a drug without the need to use a substance. This information is pertinent for music therapists treating heavy music fans, as these adolescents also claimed a sense of belonging. Accessing these heavy

music fans' sense of belonging could also help to calm anxieties and their nervous systems consistent with theories related to the polyvagal nerve and feelings of safety (Porges, 2011). Music therapists could also encourage student clients who self-identify as heavy music fans to lean into their heavy music fandom to nonviolently intimidate and thereby deter bullies.

Classroom-based Settings and Interventions

Some articles reviewed held relevancy for clinicians working in school-based settings. In two different collegiate settings, heavy metal and similar subgenres were used to immerse students in the material and engage students in intriguing studies on heavy metal artifacts and music (Ahlkvist, 1999; Guberman, 2021). The instructors prompted students to examine heavy metal albums, merchandise, and songs to encourage lively discussions. Two different classroom instructors, teaching two different subjects, sociology, and intercultural competency, used heavy music to help instruct students, which is indicative of heavy music's rapidly increasing popularity. These principles can be transferred to clinical group music therapy settings where heavy music could be used as a catalyst for invoking strong feelings and lively discussions among participants, both positive and negative.

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