Full-Length Article

Music as a Regulator of Emotion: Three Case Studies

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Abstract

This study explores music in the reduction of negative affect and emotion. Focusing on musical behavior in emotion regulation as it relates to trauma, this study investigates three questions: How do conscientious music listening practices impact the regulation of affect and self-harming impulses in individuals who experience trauma, mental illness, or self-destructive behavior? What aspects of musical intensity help alleviate anger, pain, sadness, despair, hopelessness, or suicidal ideation? How do participants use varied listening strategies to modulate negative affect and emotions?

Three case studies of two American females and one male aged 18-26 with history of a diagnosis of general anxiety disorder, borderline personality disorder, prior self-harm or suicidality, complex trauma, and PTSD are presented using a combined ethnographic approach, including survey administration, interviews, and phenomenological exploration. Through the review and thematic analysis of behavior in response to musical interaction both during and following traumatic life events, this study shows music is a successful tool for modulating overwhelming negative emotion, fostering hope and resilience, and circumventing self-destructive impulses. These results reveal potential for future research investigating the role of musical affect regulation in both trauma recovery and reducing self-destructive behavior.

Keywords: ***Music, Emotion Regulation, Self-Harm, Trauma***

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Introduction

In *Music in Everyday Life*, Tia DeNora illustrates numerous ways music is used for modulating emotion, mood, and levels of distress. She posits that using music to these ends may take place outside of professional music therapy and that music may be employed in highly reflexive ways that include coping with difficult circumstances, generating pleasure, and affirming self-identity [1]. Numerous studies in psychology, neuroscience, and musicology similarly acknowledge the benefits and applicability of music listening in mood and emotion regulation [2-13].

Recent literature has begun to explore music listening strategies in relation to affect regulation and mental health for those who are clinically depressed, as well as those living with mood or personality disorders [14-19]. Many studies continue to debate whether the effect of listening to sad, heavy, or highly emotive and intense music is more therapeutic or more harmful in nature [17, 21-26]. Though healthy persons successfully use a number of genres and types of music for emotion regulation and/or mood enhancement, research thus far indicates that the use of various types of music in self-regulation strategies may differ between both healthy and clinical populations [23, 26, 28]. Because people diagnosed with depression, anxiety, or other psychopathology are more prone to maladaptive coping techniques such as rumination, social isolation, and the tendency to reinforce negative affect, some researchers propose that these maladaptive behaviors may influence their selection of music and therefore, their response to that music [27-28]. Despite the diversity of existing literature, few researchers have directly investigated the ways music impacts the moods and lives of young people [25], let alone those with clinical diagnoses.

To analyze how various modes of listening differ in regulatory goals and outcomes, Carlson et al. [28] employed physiological and psychological measures including the Music in Mood Regulation scale [hereafter MMR] [3], a self-report measurement tool characterizing music-related affect regulation. Of particular interest were the three identified methods of using music to cope with negative mood states: *Diversion*, a strategy used by listeners for distraction from negative thoughts with an outcome of successfully forgetting the current mood, *Solace;* defined by a prior negative mood and listening to music that reflects the negative mood, but with the intended outcome of the listener feeling comfort and less alone; and *Discharge*, where anger, sadness, or other

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negative feelings are released vicariously through music [3]. The study found that of these strategies, Discharge correlated with higher levels of anxiety and neuroticism, especially among men. Data obtained through functional magnetic resonance imaging (fMRI) further indicated the possibility that Discharge correlated with maladaptive emotion regulation.

Though Discharge was found less effective at repairing mood [28], similar strategies of releasing anger or sadness through music such as *Vicarious Release* [23] and *Reduction of Negative Affect* [RA] [30] have shown to be successful methods for using music to cope with negative mood states and self-destructive impulses [31, 23, 15, 26], especially in participants with clinical personality disorders or behavior disorders [32-34]. A recent overview of research on motivation for listening to sad music highlighted the frequent correlation of music use increasing during periods of depression and rumination. This overview posited that listening behaviors among these populations was likely both adaptive and maladaptive and may depend on a combination of both motivation for listening and circumstances at the time [7].

A number of previous studies have suggested that specific listening techniques may be a safe way for people experiencing distress or sadness to process negative emotions [16, 34], experience catharsis [35-37], and avoid self-destructive behavior [23, 38-39, 26]. Early research results further show that those with disorders of adult personality and behavior (classification F6 by the ICD-10) use music for the reduction of negative activation more often than healthy controls [18, 42-43]. A 2010 study seeking to chronicle music's function in the context of adolescent self-harm further found music successful in self-regulating and inhibiting auto-aggressive tendencies [39]. The study also showed that participants frequently used music as a substitute for non-suicidal self-injury, specially in patients with borderline personality disorder. More recently, music-verbal therapy trauma groups have shown to be valuable in the treatment of complex trauma for those with serious mental illness [40]. As severe and pervasive traumatization can often result in affect dysregulation and resultant risk of self-harm, the implications of these positive outcomes are further promising [40].

Preliminary Pilot

In order to explore the way musical engagement may circumvent self-harming behavior, a preliminary pilot study was conducted by the author of 283 participants. The majority of participants reported a history of thoughts of self-harm (*n=212)*, incidence of trauma (shown through qualitative analysis of open-ended response data), or mental illness, particularly Posttraumatic Stress Dissorder (PTSD) (*n*=59), clinical depression (*n*=152), or a personality disorder (*n*=108).

Pilot Materials

To examine the use of affect regulation via both generic (non-specified) and heavy, intense, highly emotive music, the Music in Affect Regulation Questionnaire (MARQ) was created by the author, drawing on music in mood regulation (MMR) strategies from the work of Saarikallio [3]. The survey was distributed online by various nonprofit organizations supporting music and mental health, as well as a Dialectical Behavior Therapy (DBT) skills group and networks for those diagnosed with personality disorders. Participants were advised that the study was open to anyone over the age of eighteen, taken anonymously, and surveyed the ways in which people use music in their lives. The questionnaire inquired into participants' mental health history, use of music in everyday life (examining whether privately or socially, through solitary listening to music via personal devices and extending to attending live music events), musical preferences (including any preference for heavy, intense, or highly-emotive music); whether they used music for emotion regulation, and if so, how. Of the 283 participants, 75% (*n*=212) reported ever having had thoughts of self-harm. Of those who reported thoughts of self-harm, 89% (*n*=188) endorsed sometimes using music to intentionally regulate moods and/or emotions.

Of the total study participants, 89% (*n*=255) reported listening to heavy music. Of those who report thoughts of self-harm, 89% also report listening to heavy music (*n*=190). For clarity, the survey defined heavy music as follows: "Heavy, intense, and highly emotive music can take many forms. Here, we distinguish this type of music as characterized by capacious, distorted riffs; loud, pervasive percussion; or an overall feeling of 'raw power,' emotion, and affective intensity stemming from the instrumental or vocal parts." As such, the notion of heavy, intense, and highly emotive music was intentionally in large part left to the individual's subjective discretion. Results indicated that heavy music listeners (and those who have thoughts of self-harm, in particular) interacted differently with definitively heavy, intense, or highly emotive music than with generic/non-specified music (distinguished as music not falling under the above description), especially when used to modulate negative emotions. Findings further supported prior studies showing that those who engage in self-harm (or have received a diagnosis of depression or borderline personality disorder) generally used music less for positive stimulation (as in Diversion) and more for the reduction of negative affect (RA) and emotion. This result was shown quantitatively through MARQ results by the preference of Discharge for modulating negative mood. To echo the thoughts of Gebhardt and von Georgi [32], this emphasis on the strategy of RA was likely an effort to overcome strong or overwhelming negative emotions often present in those experiencing affect dysregulation.

Objective

Building on qualitative results of the MARQ survey, the following case studies explore music in the reduction of negative affect and emotion. For many of those surveyed during the preliminary pilot, music was described not only as a tool of regulating emotion, but in some cases, successfully avoiding self-destructive behavior as well as combatting feelings of dissociation or suicidal ideation. Focusing primarily on musical behavior, this study explores three questions: How do conscientious music listening practices impact the modulation of affect and self-harming impulses in individuals who experience trauma, mental illness, or self-destructive behavior? What aspects of musical intensity help alleviate anger, pain, sadness, despair, hopelessness, or suicidal ideation? How do participants use varied listening strategies to regulate and modulate negative affect and emotion?

Methods

To investigate musical behavior as emotion regulation both during and following traumatic life events, three case studies are constructed using structured and semi-structured interviews, and open conversation. Three young American participants aged 18-26 were chosen by the author for an in-depth case study based on permission for their stories to be used in research, availability for interviews, and subjective criteria of befitting life experience. Qualifying experiences included the presence of repeated or recurring interpersonal trauma, difficulties in regulating affect, and the reported individual use of music listening for the purpose of emotion regulation. Informed consent for the use of all information was obtained by the author from each individual.

Data Collection

Data was collected between 2014–2016 via recorded structured and semi-structured interviews, administration of the MARQ survey, and other ethnographic interaction (open conversation). Interviews and conversations were then transcribed verbatim, subjected to phenomenological and thematic analysis, and edited for final inclusion. For safety and confidentiality, the names of all participants have been changed.

Data Analysis

In order to understand each participant's lived experience as well as the ultimate impact of that experience, a combined process of phenomenological exploration and thematic analysis was taken to case review. In addition to examining each case in isolation, an integrative analysis was employed across all three studies in order to identify recurring and comparable patterns, themes, and affective similarities.

Given the difficulties regulating affect often found in both those who engage in self-destructive behavior and those who have experienced complex or recurring interpersonal trauma, the three strategies defined by Saarikallio [3] in the MMR scale of using music to cope with negative emotional states are highlighted throughout. Observe how these three everyday listening practices (Diversion, Solace, and Discharge) are utilized by the participants in affective, life-changing, and even life-preserving ways.

Case Study One

The first participant, Amy, a self-identified heterosexual American female was born in a small suburban community to two biological parents and one older sister. Amy was homeschooled during her childhood and adolescence, and never attended public school. Over the past decade, she has experienced abuse, hunger, poverty, and homelessness, as well as clinical diagnoses of anxiety, depression, and borderline personality disorder.

In 2004, Amy became pregnant as the result of a sexual assault. At 18 years old, this was the first time she began seeing a doctor. Shortly after her child was born, she was diagnosed with depression and an anxiety disorder. She recalls experiencing frequent panic attacks that rendered her entire body sore and trying a number of psychiatric medications unsuccessfully. When she was no longer able to hold a job as a result of the anxiety, she became homeless. During a conversation held in 2014, she recalls:

> I was first put on Celexa, then Prozac, and Zoloft with no real help. I was seen in the ER (while taking Celexa) for what I thought was a heart attack, which turned out to be a "Bronchial Panic Attack." They never offered any benzos (benzodiazepines) which at the time I didn't know existed. I even asked if there was something fast-acting I could take if I felt a panic attack coming on, and they said there was no such thing. I continued to have panic attacks, not always that bad, but enough to cause problems. I ended up losing a lot of jobs because I was too scared to go into work because of being 15 minutes late, so I'd just never go back to that work.
>
> I was embarrassed about my problem, some of the people close to me were telling me I needed to suck it up because I have kids - I can't just not work. I felt I was being selfish and a bad mom, but my anxiety was so debilitating. I actually never realized how much of a problem I have until I started seeing the free therapist at the shelter. She helped me understand how it doesn't make me bad to be like this. And she told me she thinks I need Valium. I saw my

> doctor and they put me on Paxil, which didn't work. So, she put me on Buspar, and Ativan. Still didn't work. So, she gave me Xanax. The dose was too small. But finally, she gave me valium but only 2mg and told me to call her in a week. It felt like a light at the end of the tunnel. It didn't make me tired at all, I felt I could maybe actually go to a job interview at some point. When I called her, I asked if I could up the dose because it was working but didn't feel like quite enough. I was able to make a phone call (I'm terrified to talk on the phone) but when I asked to increase the dose, she told me to stop taking the Valium and had me start taking Risperidone. It surely helped with my mood swings which is amazing! But did nothing for my anxiety. I was a nervous wreck.

Though Amy was grateful for the opportunity to see a therapist, the many medications prescribed by her doctor remained unsuccessful in managing her anxiety and panic attacks. Another time, Amy confided a particularly difficult portion of her stay in the shelter:

> In January or February, I made friends with my neighbor and I knew she was a recovering heroin addict. But one evening her quiet 12-year-old son came pounding on my door crying saying his mom passed out. I walked over there, and she was slumped on the toilet…I didn't know what was going on, but I tried to help wake her up. Then I noticed a needle and a black tar blob on the counter in a little plate beside her. It took everything in me to keep it together. But I got her to wake back up and she was ok. I went home and cried all night and cut myself. (September 2014)

As time passed, she continued to struggle with self-harm, occasional substance abuse of alcohol, acute anxiety, and depression. Caught in an abusive relationship but feeling unable to leave, Amy expressed doubt that she could "do it on her own," and wished she had friends nearby. She expressed the difficulty of juggling both the mental health issues of herself and her partner whilst keeping her children protected, safe, and oblivious as possible. She recalled the event that led to her young daughter's post-traumatic stress:

> I don't remember if I told you Keira has PTSD now from the shooting that happened at the shelter. We walked into it right after it happened and as much as I tried to keep the kids unaware, Keira told her teacher that someone got shot and is with Jesus now.

A few days later, Amy provided further information. She discussed self-harm, and reported engaging in cutting behaviors once at age fourteen, approximately once or twice a week from ages nineteen to twenty-two, and "maybe once every two or three months" from ages twenty-two to twenty-seven or twenty-eight. She remembered cutting mostly her forearms, biceps, chest, legs, hands, and wrists. She described her feelings:

> It was kind of a distraction. And to feel something bigger than what I was going through. It wasn't really from being depressed. Maybe angry. Or maybe to feel in control of something…I think I've felt very powerless a lot in my life and that is one thing I can do. And it calms me down. If I felt like I was losing my mind, or very emotional, then I would cut, and it brought me back to reality.

Clarifying that it helped her feel in control, she replied "Absolutely, it helped me take control of my emotions and find a center." When asked whether she had ever engaged in the destructive behavior with the intent to end her life, she responded, "Not really. I have thought about it. But when I cut, I never tried to bleed out or anything. I always cut to feel in control and to stop the emotional pain."

In September 2014, the author conducted a small pilot project on frisson responses to music, paying special attention to the function of dissonance and thwarted expectation. As Amy exhibited considerable interest in learning about music and well-being research, she expressed enthusiasm in participating. The task included listening to two minutes of instrumental music and answering questions regarding chills and emotional responses. The piece was "Montis" - a concert etude for 2 pianos from *Modes & Meters Vol.1* by Milen Kirov. Amy reported experiencing chills numerous times, as well as enjoying the song very much.

Three weeks later, Amy sent a brief message: "Do you think it's possible that listening to that song helps me?" When asked to clarify, she specified she was referring to the etude used in the pilot study and replied, "Since then I've only had 1 or 2 intense urges to cut, and that is huge difference than normal." As she continued discussing her progress, she reported she had just had her first session with a new therapist, whom she felt was very well qualified and "right for her" due to her background and ease of rapport. She also felt Amy met criteria for borderline personality disorder. Amy was asked what she thought about this given her mother shared the diagnosis:

> Yeah, I've heard that hardly anybody wants to work with borderlines. (But) It's nice to know what has been going on for the past 15 years my life. I've always been able to feel other people's

> feelings so deeply, or when watching a movie, it would be like I *was* them.

As Amy began to exhibit further interest in how music can affect the brain, she expressed curiosity as to whether her increase in positive emotions and resultant decrease in negative emotions she experienced after more often engaging with *Montis* and other music could be related. She confided that she'd never felt her life could be "normal" until the past week. Through the realization that she *was* strong and more in control of her behaviors than she previously imagined, she expressed that discovering music as a support and coping tool had given her hope.

When reconnecting with Amy two years later, she shared an immense amount of personal progress. She'd found the courage to leave her abusive partner and sustain what she described as a loving relationship. She was no longer homeless, maintaining full-time employment, and nearly medication-free for a year. She expressed that listening to her musical playlists often helped in reducing anxiety, finding motivation to perform daily tasks, and expressing intense emotions appropriately. What follows is the most recent conversation, dated Tuesday, April 9, 2016.

Why do you listen to music?

> It makes me feel better, helps me put feelings into words. Relaxation. To feel happy.

Tell me about your playlist(s). (She regularly listens to curated playlists on her phone.)

> I downloaded Spotify where I could get more specific songs. That was just about a year ago I think…songs that made me feel better…I listen to it for at least an hour, every day. Or try. And if I skip a day or two, I definitely notice (she laughs).

When asked how she chose her playlists, she responded, "by the way they make me feel." Upon receiving screen captures of her playlists, she clarified what the title of one in particular signified:

> My boyfriend Travis. Songs that remind me of him. He is also really into music, uses music as therapy, and encourages me to as well. Even though he doesn't like a lot of the embarrassing crap I do (she laughs).

Included in the playlist marked "Sleep" was "The End of the World" by Skeeter Davis. When asked about its particular significance, she remarked:

> It's a very hurtful 'deep-down' song, but reminds me of how sad things can be. And of the light at the end of the tunnel.

Has there ever been an instance that you'd considered harming yourself (or making other self-destructive decisions), but were able to listen to music instead?

> I remember one time I had to call into work. The next day I was so nervous to go in [after calling] and my boyfriend actually put on my playlist for me, and it brought me out of my panic state. Later, after he left, I got very anxious again and had a razor in my hand, but I remembered music!!! And I put on my playlist and I didn't end up cutting. It helped me focus. This past year that I've been really good from restraining from self-harm, there have been struggles that music has helped a lot with.

When asked what it was about the music that she thought allowed her to avoid cutting, she replied:

> I remember it helped me relax. Opened my mind and [let me] get lost in the music. It's not the lyrics. The playlist is mostly love songs, but some heavier, like "Wait and Bleed" by Slipknot. I know I've reacted positive to some stuff even if the song lyrics aren't positive. I guess I don't know how it changes my emotions, it just does. I'd say it's more how the instruments sound than the vocals of the song. When I would harm it was because I needed a release or to gain control of myself and emotions. And that is like what the music did for me. It helped me gain control and release my emotions without harming myself.

Baker & Brown [26] note that across musicological literature, Slipknot has faced criticism for their notoriously aggressive, angry, and violent music. Regarding "Wait and Bleed" in particular, they further highlight that while the lyrics are suggestive of suicidality and self-harm, the closing lines of the song are not a clear submission to these urges. They describe, "The turn in tone—from inward pain to outward anger—could indicate a strength, a resolve, a resolution not to be beaten" [26]. When I asked Amy directly if listening to Slipknot or that type of 'heavier' music had ever had the opposite effect of making her want to harm, she responded, "No, never. It makes me feel good…great." Listening to the loud, often thrashing sounds of Slipknot for many might serve to further aggravate, frustrate, or elevate arousal in a negative manner. But for others like Amy, the sheer intensity of the music is the only force strong enough to match or even exceed the pain they are experiencing and unsure how to healthily express. Amy acknowledges the somewhat counter-intuitive nature of the idea, remarking, "Yeah. It's very interesting. But metal can be a good release."

Amy's description of employing Discharge (in using her playlist to avoid the act of cutting) and Solace strategies (in finding comfort in both nostalgia and thinking of Travis) highlight a familiar phenomenon in the context of music in emotion regulation. In addition to offering a sense of security that one is not isolated in the world, these music listening methods can prove highly effective when applied in social contexts, described above by the sharing of musical experience with her boyfriend. This is especially applicable for those who experience severe anxiety or fear of abandonment: Though it is not often feasible to remain in proximity to a partner, friend, family member, or even mental health professional at all times, music provides a powerful reminder in the form of autobiographical memories, solace, and perseverance such that one is never ultimately alone.

Was there a particularly challenging time in your life that you can recall music really "getting you through?"

> Absolutely, when it came down to it, leaving my partner of 6 years. Music helped me with the decision, staying strong during, and healing in the aftermath.

Amy's story illustrates not only the strength shown through a number of trials, but the ways in which she used music as a coping tool in her process of healing. In response to the aftermath of her decision to leave an abusive relationship, she used music for the intentional regulation of her feelings and emotions (here resembling Diversion and Solace). What is most crucial to note is her recurring use of the word "help." She does not report that the music *itself* enabled, allowed, or even made possible her going about the personal and maternal responsibilities of her daily life: in each and every instance, music helped *her* accomplish everything from achieving biological necessities such as sleep, to watching her children play outdoors, to feeling positive feelings and move beyond the initially immobilizing pain. Using music as a facilitator and comfort, Amy remained the chief agent in her progress and resilience.

You previously mentioned in the past you loved live concerts but could no longer attend them. Do you think this has/could change?

> Actually, I'm going to my first concert in about 8 years at the end of the month. I haven't gone because of kids, money, anxiety in crowds, loss of interest… [but] I've been doing better, and my boyfriend wanted me to go to this show coming up with him. Honestly, I'm not super excited, or nervous (she laughs).
> But I'm glad I'm not nervous.

Case Study Two

The next participant is Jake, a self-identified twenty-six-year old heterosexual American male. Brought up in a small rural community in Colorado, Jake was raised in a conservative religious environment by his natural parents. He was homeschooled until the eighth grade, at which point both living grandparents passed away and he became temporarily responsible for his own education. Shortly thereafter, he completed high school at a private Christian school, and later pursued a bachelor's degree.

Jake showed promise in music from an early age. Beginning piano lessons at eight years old, he later excelled in songwriting and composition. He recalled some of his favorite pieces: Chopin's "Fantaisie Impromptu" and "Revolutionary' Etude," Debussy's "Le plus que lente," and Mendelssohn's *Songs Without Words.*

Though Jake was never formally diagnosed with any type of mental health condition, he experienced the deaths of several friends and family members during his late high school and college years. He reports a history of chronic sadness and depression, as well as an extensive battle with self-harm and suicidal ideation. He explained:

> Shortly after Matt died, my counselor, pastor, and parents knew that I had been cutting…I tried to explain to them that it was related to many things, some of it being self-image; a lot of it being the grief and loss and needing to feel something to cope. This went on for months. I picked up smoking cigarettes as I was able to put in music, walk around my neighborhood, and smoke in the middle of the night to push down the urge to self-harm. Ultimately, cigarettes weren't enough…I went from cutting my wrists to cutting upper arms, stomach, back and legs in easily concealable areas.

As he spoke more about his experience losing loved ones and the strategies he used to cope, music was a central and recurring theme. For Jake, any challenging time was somehow connected to the music he relied on to 'see him through.' The following is taken from an interview conducted on April 20, 2016. Moments that appear to correspond with strategies of musical emotion regulation are noted parenthetically.

Do you feel music is a large part of your identity?

> Yes, it is a significant facet of who I am. It's almost always been an integral part of my life.

Do you feel you are affected (either positively or negatively) by music?

> I feel both positively and negatively affected by music. Music is something that I seek when I need to find a sound that meets where I am [Solace]. If there is a song or a melody that meets me where I'm at emotionally, I could listen to it on repeat for hours and hours. In some ways, this can magnify a potentially "harmful" emotion, but for me, even if it intensifies my sadness, it feels more like a comforting dark corner where I can just channel and truly feel the emotion without having to resort to self-harm [Discharge].

Do you listen to music to magnify/heighten, or alleviate/lessen feelings of hopeless or despair?

> I definitely use music to alleviate feelings of despair and hopelessness…I guess knowing whoever composed the concerto or wrote the indie ballad or rock riff has felt the way I do in that moment - it's enough [Solace].

What about thoughts of self-harm, or suicidal ideation?

> This is a yes to both. There are times that I listen to music to pull myself out of a suicidal thought, and there have been many times where I listened to it to try and magnify it, but in all cases it's only ever helped me in identifying with my depression, hopelessness or despair and allowed me to feel something [Solace/Discharge].
>
> Often times, music would be the only thing that kept me from cutting. Back in college there was this Eminem song called Deja Vu that I would listen to - something about it, how dark it was, it just comforted me [Solace].

Has the process of engaging with music helped you in overcoming hardship?

> Self-harm is something I have struggled with since about the age of 15. Music ultimately became one of the only things that could calm my mind or evoke any kind of emotion… Over the years I experienced loss to an extent that I developed walls that would cause me to shut down to avoid feeling the full extent of pain of any given situation. The side effect was a crippling inability to cry and release. Listening to music became the tether between myself and my emotions, allowing me to finally cry. To grieve.

Has there ever been an instance that you'd considered harming yourself (or participating in other self-destructive behaviors) but were able to engage with music instead?

> I can think of a few very specific circumstances. The first one that comes to mind was when I almost killed myself. I was ready to do it - had the knife to my throat, I was listening to music and crying my eyes out. I had my Zune on shuffle, I don't even remember what was playing — I was ready to carry it out. I just remember Elliott Smith coming on next: "Miss Misery." His words hit my ears and I immediately calmed down. The song is sad, but it met me where I was — it let me 'fake' it through the next day.
>
> I remember it making me think about every last person I knew and what their reaction would be. To a degree it got me outside myself. It broke down walls. Still does. To answer your question, the music ... it sort of shreds the veil.
>
> Elliott Smith has probably saved my life more than once, as well as fed my depression in some ways at certain times. Radiohead can always make me cry, and often times that's the emotion I'm needing to feel whenever I've felt the need to cut [Discharge]. Silversun Pickups, Underoath, even classical music. Frightened Rabbit. These are all artists that met me in the shadows and gave my soul a 'shattered sound', and a companion.

Jake's use of Elliott Smith may be significant for those acquainted with Smith's work. An indie folk/rock singer-songwriter, Smith was respected by fans and among many in American music communities as a highly gifted yet troubled musician [41]. Having experienced long-term depression, alcoholism, and drug dependence, Smith's lyrics frequently represented the type of beautiful yet painful turbulence from which he struggled. Though Smith displayed a sincere and valiant effort to become sober throughout (and especially near the end of) his life, he died by suicide in 2003 [41]. He was thirty-four years old.

As some research has shown a link between listening to sad music and rumination [28], Smith's tragic death and often characteristically sad lyrics could be considered less than encouraging for music listeners. Though Jake acknowledges that the music probably fed his depression at certain times, he similarly notes that "in all cases" it's aided in one of the most important aspects of preserving his mental health: being able to identify his emotions. Regardless of listener mindset or type of music sought, it is crucial to avoid depending too heavily on music to control behavior.

Jake's descriptions of his alienation and loneliness from being "unable to feel" are routinely echoed in accounts of

those who experience affect dysregulation and self-injurious impulses. Consider Jake's use of Elliott Smith ("Miss Misery") contrasted with Amy's use of Slipknot ("Wait and Bleed"). Though sonically the artists differ in the extreme, similar themes of despair appear throughout the respective songs. Yet it is worthwhile to note the counter-intuitive nature of Jake's description of the music that 'kept him from cutting': "…something about it, how dark it was, it just comforted me." He further observes that Radiohead can always make him cry, an act of both recognizing and physically expressing his emotions that tends to be productive in thwarting the urge to self-harm. One might argue that for Jake, Solace and Discharge were most at play in their power to reach in, remind him that others have felt the same and yet emerged from their despair, and bring him back to reality. Despite the sad or desperate nature of the chosen music, by shifting the turmoil from internal to external Jake remarks it "got me outside myself."

For some people, the perceived isolation from being unable to adequately articulate one's thoughts, emotions, and needs can leave sufferers feeling as if no one understands, or worse, *will ever* understand. However, for Jake (and many others) the intensity and solidarity identified in Smith's music not only reminded him of "every last person he knew," but that someone else had "been there too" — that they are indeed not alone. This reminder is many times the type of gripping, sympathetic solace capable of reaching the subject when little else has.

Case Study Three

The third participant is Kathryn, a self-identified twenty-six-year old American female of Iroquoian descent. Though she never attended any type of schooling prior to college, she began college coursework at sixteen. A year later, she obtained a birth certificate, social security card, and GED. By eighteen, she had earned an associate's degree. She graduated with a master of science in psychology with a focus on chemical addictions four years later. She now works as a mental health practitioner.

Kathryn contacted the author for the first time on November 30, 2011 after coming across her music psychology blog. When she reached out to ask a few questions about the field of neuromusicology, she discussed various potential graduate programs and jovially confided that her best asset was likely her "ridiculously inquisitive cranium."

In continuing online correspondence with Kathryn, she disclosed that several basic tenets of her childhood painted a chilling picture of what she experienced growing up. Born and raised in an isolated trailer in the woods, her father attempted to conceal the outside world, rarely allowing she or her sister to leave the house. They never attended school, and no one visited. Katharyn reports experiencing physical and sexual abuse from her father as early as she can remember up to age 16. When their mother went to work, their father schooled them in the subjects of which he approved: calculus, and the supremacy of white people.

Kathryn described her father as violent and domineering, abusing his family in a number of ways. He also suffered from Huntington's disease, a progressive neurological disorder whose symptoms can include paranoia and delirium, hallucinations, and irritability. As his illness progressed and he became more aggressive, her home environment became increasingly dangerous. Finally, when Kathryn was 16 and her younger sister 13, their father became irate and grabbed them by the necks, pinning them against a wall. As Kathryn feared for their lives, she began planning their escape, and one early morning in 2006 her mother and sisters snuck out the back door and made it to safety in a women's shelter. When her father's health deteriorated, he was eventually moved to an assisted-living center. He never came after them.

What follows is taken from an interview conducted with Kathryn online on Monday, April 25, 2016.

Have you ever been formally diagnosed with depression, anxiety, or some other mental health condition?

> Post-traumatic Stress Disorder.

At what point were you diagnosed with PTSD?

> It was about a year ago actually, when my relationship at the time was disintegrating, and I was noticing that as things fell apart, I was feeling more intensely than ever before. I went to see a therapist and that's when I was diagnosed with PTSD, after I had told them most of my story at intake.

Have you ever had thoughts of harming yourself?

> Not really. I would say music has kept me from the edge many times though, in terms of despair.

Can you clarify a bit what you mean by "the edge"?

> Yes, going back to the panic attack... I had no idea what was happening to me, I just assumed I was losing my mind. I never talked about the experience until after I was sure I wasn't losing my mind, but every night when I closed my eyes to go to sleep, this giant ghost of mockery and meaninglessness would eat up my consciousness. Being a mental health clinician, and looking back on that experience, I feel pretty safe in diagnosing myself with experiences of mild psychosis at night for several months. That's where the music came in, delivered by iPod and earbuds, usually BT's

> "This Binary Universe," which had such a wholesome and comforting sound, mingled with overtones of joy and grief. There are many nights I wouldn't have slept at all without it. I haven't had anything like that experience ever since. Although I still love that album, I never listen to it any more. I feel that its work with me is done.

Has the process of engaging with music helped you overcome some type of hardship?

> Yes. When I was growing up in my abusive home, playing instruments helped me to find my center amidst chaos and pain. Listening to music and being in nature were my sole experiences of joy as a child.

Can you elaborate on what you mean by finding your "center?"

> I guess I just mean the opposite of dissociating, which was my tendency at any given day and time, due to the nature, frequency and intensity of the abuse that was occurring. Music was the only thing that was physically happening that wasn't abusive. I daydreamed and read and wrote and drew, but none of things were tangible and real to me in the way that music was, they couldn't compete with the abuse for my attention like music could, and did, and sometimes won. When this happened, it was like a light at the end of a tunnel. I knew there was more to life than what was happening to me.

Both Amy and Kathryn replied "Absolutely, it helped me take control of my emotions and find a center." Both Amy and Kathryn referenced music's ability to find a "center." When Amy described the catalyst for previously cutting herself, she reported, "It was kind of a distraction. And to feel something bigger than what I was going through…I think I've felt very powerless a lot in my life and that is one thing I can do…I would cut, and it brought me back to reality." Though Amy and Kathryn experienced unique circumstances, both expressed the need for something "tangible and real" (Kathryn) and to be "brought back to reality" (Amy) despite the pain they experienced. Where Amy initially sought to gain control through the act of self-harm, Kathryn had first reverted to dissociation. Both women eventually found their ability to cope in the present and their 'center' through music.

Do you sometimes use music to intentionally regulate your moods and/or emotions?

> Yes. I find that happy music makes me sad, and sad music makes me happy. I haven't figured that one out yet, but I have some theories...displaced sense of belonging/identification, etc.

Do you listen to music to magnify/heighten sadness?

> Yes.

Do you listen to music to alleviate/lessen sadness?

> Yes.

Do you listen to music to magnify/heighten anger?

> Yes. (Or rather, identify with and accept in myself as a real emotion that I'm really feeling. Helps me to anchor to anger.) Anger was never something that was safe for me to feel... As a child, expressing anger led to intense and sometimes life-threatening physical abuse. I still struggle to express it, although I don't dissociate from it anymore, which was my practice for years even after I left home. That's what I mean by anchoring: not dissociating - like really feeling the anger and letting myself sit in it, not trying to ignore it or make it something else.

Do you listen to music to magnify/heighten feelings of hopelessness or despair?

> No. Sometimes it happens as a side effect though, which I don't mind at all.

Do you listen to music to alleviate/lessen feelings of hopeless or despair?

> Yes.

Of Diversion, Solace, and Discharge, which type of listening to music most improves *your mood?*

> Most often solace, sometimes discharge, never diversion.

Discussion

For many who experience affect dysregulation from intense trauma or mental illness, Solace and Discharge are effective and frequently-employed strategies [23, 26, 32]. The final statement of Kathryn's preference for Solace in mood improvement is compatible with prior research and case

studies [26]. Often those experiencing negative life events are assured that no matter the circumstances, they are not alone. Research has shown music may provide similar feelings and assurances of solace and comfort in troubling times [1]. Though Kathryn's use of music for Solace in response to trauma from a young age to adulthood varies in frequency and preferred application, it remains her most often employed tactic.

What helps one person may harm another. Kathryn reported no emotional harm in repeated listening to what she deemed as sad music; however, research again probes the question whether too much Elliott Smith, for example, would eventually have a negative impact on Jake [28]. Kathryn describes at times listening to music for the explicit purpose of magnifying feelings of hopelessness or despair, which she doesn't "mind at all." What is important to note here is that though Kathryn has no history of self-harm or suicidal ideation, Jake does. What is considered "safe" and helpful for one person or situation may not be for another, and this must be diligently observed in order to avoid the pitfalls of a 'one size fits all' approach in both research and practice.

Despite their differences, all three participants found comfort in the ability to recognize and identify their emotions - a realization highly aided by music listening. Each participant experienced some type of trauma, and they all describe musical methods for reclaiming something lost: for Amy, the ability to surpass her anxiety and participate more fully in daily life; for Jake, the ability to appropriately identify and express his emotions; and for Kathryn, the means to regain control and avoid dissociating. It seems in this case that for each participant, music is used successfully toward positive outcomes as catharsis, comfort, or avoiding self-destructive behavior. Musical intensity similarly appears to play a positive role for these case study participants, especially when used via Discharge.

For some people experiencing the after-effects of significant trauma, the notion of entirely altering one's feelings or mood by distraction (such as in the goals of distraction in Diversion) may seem either futile or overwhelming for their particular situation. Recalling Jake's intense struggle and desire to end his life, his description of how he was brought out of the act by becoming suddenly aware of the music's lyrics is significant: "The song is sad, but it met me where I was — it let me 'fake it' through the next day." In meeting Jake on an emotionally compatible plane, the perceived heaviness and intensity of the music and lyrics assisted in metaphorically *grabbing* him back to re-join the affected and living—not by dulling or disguising his pain but by *matching* it. Recent research substantiates music as a significant tool in affect regulation specifically by "encouraging the music to become louder and then return to a quieter place" [38]. For Amy, Jake, and Kathryn, it seems their strength and perseverance were cultivated not by habitually distracting or distancing themselves from the overwhelming obstacles presented, but by consciously endorsing their will to survive, many times using music as the most reliable or only tool available. Research in music therapy further supports music may act as a defense against dissociation by helping survivors of trauma regulate their emotions during states of hyperarousal [44], as well as activate the Social Engagement System and more regularly connect with others [45, 46]. For these participants and many survivors of trauma, music serves as an anchoring *other,* reminding them of the human ties that ultimately bind us all.

Limitations

The current study is presented to shed light on three case examples which found the personal use of music highly successful in the reduction of their negative emotions, forging of their resilience, and ultimately, their survival. As such, a limitation of the current study is linked to the subjective nature of conveying one's experience via structured and semi-structured interviews. Future research should more heavily control for various clinical aspects, such as the type and etiology of trauma experienced, presence of comorbidity, and other indicators such as history of abuse. Further, a more vigorous systematic review of musical strategies of affect regulation may be indicated in ascertaining a more comprehensive status of the research.

Recommendations for Future Research

As interpretations from findings in music and emotion regulation studies vary significantly, a consideration for future research persists: individual phenomenological responses to music are often highly divergent, volatile, and discrete in application. Though Diversion serves as a beneficial tool for some, it may not always be the most effective way to experience validation in one's thoughts or lend clarity or relief to negative arousal. Further research is needed to confirm which clinical populations find the modulation of strong negative emotional arousal via music most effective in coping with negative mood states, and precisely by what mechanisms. For many people, Solace serves as a valuable means of providing a sense of solidarity, support, and affirmation during tumultuous times. However, a significant percentage of individuals diagnosed with mental illnesses report a preference for Discharge or similar strategies such as RA [23, 33]. The practice of 'externalizing' to redirect negative feelings and behaviors outward into the environment is a positive alternative to self-harm, especially when pursued in a healthy manner like musical engagement [26]. For young people experiencing affect dysregulation stemming from depression, thoughts of self-harm, or suicidal ideation, music can provide a safe and appropriate way to process and externalize otherwise auto-destructive impulses [23, 26, 39].

Conclusion

Prior literature suggests discernment when appropriating the power of music, cautioning vulnerable populations against relying on any one methodology too strongly, or even musicking as a whole. McFerran & Saarikallio advise against viewing music as the ultimate source of power, emphasizing that "adopting a conscious and intentional approach to musicking is important for at-risk youth" [27]. When engaging in and interpreting research, it is essential to keep in mind that human agency might ultimately weigh most heavily when striving to understand the "power of music." This stated, studies consistently show that music plays an enormous role in the daily lives of many, particularly in the modulation of negative emotion. Future research should investigate the mechanisms of musical affect regulation in both trauma recovery and reducing self-destructive behavior in clinical populations. The field must keep a discerning and open mind to give rightful importance to the efficacy and affective power of music.

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