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The influence of music on emotions and cravings in clients in addiction treatment: A study of two clinical samples

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ABSTRACT

Music is commonly associated with substance use yet little is known about the music experiences of adults with substance use disorders. In particular, there has been no detailed analysis of musical influences on emotions and cravings among clients in treatment and how these influences might occur. To explore these questions, surveys of music experiences were collected from 143 clients undergoing treatment (37 private hospital clients and 106 residential rehabilitation clients). Of the hospital sample, 70% listened to music for over an hour each day, typically while alone, and their preferred genres were pop and rock. Clients stated that music listening intensified the emotional experience of drug taking and vice versa. Residential rehabilitation clients reported that their preferred music was gloomier or heavier when using substances than when in recovery. Forty-three percent said that particular music increased their urge to use substances, and there were five common explanations, including: the song was associated with past experiences of substance use; the song evoked emotions related to substance use; and the song contained lyrics about substance use. Nevertheless, most respondents believed that music was important to their recovery. The findings are considered in terms of their clinical implications.

Introduction

Cognitive behavioral models of substance use posit that individuals are particularly likely to use a substance when in the presence of stimuli related to previous episodes of use. The cue reactivity paradigm describes how environmental stimuli such as people, places, and the sight and smell of the substance, play an important role in maintaining substance use behaviors. This occurs because the contextual cues trigger craving and an urge to use, which motivates the individual towards drug use behavior (Carter & Tiffany, 1999; Traylor, Parrish, Copp, & Bordnick, 2011). Interestingly, auditory stimuli have not been widely studied in relation to substance use behavior. Music is an environmental stimulus commonly found in the contexts where substance use occurs, so particular musical genres or songs have the potential to become conditioned stimuli associated with substance use.

Further, music is known to elicit emotional states (Hunter & Schellenberg, 2010; Juslin & Sloboda, 2010) that could be associated with urges to use substances, given that emotional states often drive substance use (Kassel, 2010). There is a wealth of music psychology research on the psychological mechanisms that link music engagement with emotional responses. For instance, Juslin, LiljestrÖm, Västfjäll, & Lundqvist, 2010; Juslin & Västfjäll, 2008; Juslin & Sloboda, 2010 described the following mechanisms in their BRECVEM model: cognitive appraisal, whereby the listener makes an appraisal of the music on several dimensions related to his or her goals in life which evokes an emotional response; episodic memory, whereby an emotion is induced in a listener because the music evokes a memory of an event from the listener's life; emotional contagion, whereby the listener perceives an emotional expression in the music and then feels the emotion; brain stem reflex, in which acoustic features of the music (e.g., a sudden loud or discordant sound) are taken by the brain stem to signal a potentially important event, thus producing arousal; visual imagery, whereby the music evokes imagery in the listener's mind (e.g., of palm trees on a sandy beach) that is associated with an emotional response; musical expectancy, whereby an emotion is induced in a listener

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because the pattern of musical notes does not conform to the listener's expectations (e.g., a repeated phrase alters on the last note); and evaluative conditioning, whereby an emotion is induced by a piece of music because this stimulus has been paired with other positive or negative stimuli in the past (e.g., feeling happy when hearing the theme tune from ones' favorite television serial). These mechanisms have the potential to link music listening with drug use urges among individuals in treatment for alcohol and drug use problems. For instance, a particular song or album of music that the individual often listened to while taking drugs might evoke both pleasant emotions and drug taking urges when the individual is in treatment, through an evaluative conditioning mechanism.

Other research has described the meaning-making aspects of music whereby listening to personally meaningful music serves as a reference point for identity and recovery from addiction. Identity change from a drug-using identity to a "recovery" (or non-using) identity has been found to play an important role in predicting retention in treatment (Beckwith, Best, Dingle, Perryman, & Lubman, 2015) and outcomes such as abstinence and life satisfaction after completing treatment (Dingle, Stark, Cruwys & Best, 2015). Frith (1996) said in relation to music and identity that our experience of music - of music making and music listening - is best understood as an experience of the self-in-process. He described music as a key to identity because it offers a strong sense of both self and others, of the subjective in the collective. Music identity has been explored in individuals recovering from mental health problems (Hense, Skewes McFerran & McGorry, 2014) and it was found that participants' use of music aligned with their symptoms, and music therapy played an important role in their recovery through such processes as reality testing, building belonging within the music group and sharing music with the community. Musical identity has also been explored among individuals managing health problems such as Multiple Sclerosis (Moreira, Cavalieri, Moreira, & Lana-Peixoto, 2009) although not to our knowledge in adults recovering from addiction problems. Listening to music that evokes elements of the individual's drug-using identity might also evoke urges to use substances in individuals in addiction treatment. Alternatively, music might serve as a way of building a new identity related to abstinence and recovery for these individuals.

Given this evidence that music is linked to emotions, memories, cognitions and identity, which are in turn known to affect substance use behavior, it is surprising to find a relative lack of research into music experiences in adults with substance use disorders (Horesh, 2010). It is also surprising that music interventions are not more widely used within substance abuse treatment services. A recent study in which 307 substance abuse treatment services in the United States participated reported that fewer than 15% offered music therapy within their programs, and those that did were likely to have a higher percentage of female patients (OR = 1.014) and a higher percentage of adolescent patients (OR = 1.016) (Aletraris, Paino, Edmond, Roman & Bride, 2014).

Correlational studies of music and substance use

A number of correlational studies have found an association between music genre preferences and substance use (Herd, 2005). For example, preferences for rave (dance music), rap, and heavy metal have been associated with drug use (Arnett, 1996; Dent et al., 1992; Forsyth, Barnard, & McKeganey, 1997; King, 1988). There is also evidence of an association between house/techno music and ecstasy and amphetamine use (Pedersen & Skrondal, 1999). In clinical samples, this link is less clear. One study (Doak, 2003) found no significant relationship between music preference and drug preference, although there was a link between music preference and primary diagnosis, with clinically depressed adolescents more likely to prefer rap, heavy metal, and techno music. Doak concluded that while diagnosis maybe an indicator of music preference, it is not an indicator for the reasons underpinning the use of music. Indeed, the most commonly reported reason for music use (72%) and drug use (58%) was as a means to relax. It appears that emotional effects were an important reason for both music listening and substance use in this clinical sample.

For substance-dependent individuals it is often negative emotional states that trigger or maintain episodes of substance abuse (Kassel, 2010). Negative reinforcement models propose that internal cues such as anger, sadness, and anxiety drive addictive behavior through the individual's attempts to avoid or block their difficult feelings (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004; McCarthy, Curtin, Piper, & Baker, 2010). Negative mood states, in particular depression, are also implicated in relapse following treatment for substance abuse (Dingle & King, 2009; Zywiak et al., 2006). Similarly, experiential avoidance – defined as attempts to avoid experiencing uncomfortable emotions, thoughts, images, and memories (Hayes et al., 2004; Suh, Ruffins, Robins, Albanese, & Khantzian, 2008) – has been linked to a number of clinical disorders including substance use disorders. It follows then that if particular songs or genres of music evoke strong feelings of sadness, anger or other negative emotions, this could serve as a maintaining factor for substance misuse.

Interventions using music for substance use treatment

Previous research with clients of a hospital drug and alcohol service indicated that the addition of a weekly music therapy session within a group cognitive behavioral therapy program promoted the clients' experiencing of both positive and negative emotions, and that clients experienced these emotions to a moderate or high degree. The clients reported that music therapy was beneficial in allowing them to experience emotions without the need for substance use (Baker, Gleadhill & Dingle, 2007). In another music therapy study, Silverman (2011) assigned 141 patients in a detoxification unit to either a 'rockumentary' music intervention (lyric analysis of the song "Under the Bridge" by Red Hot Chilli Peppers along with discussion of the band's history and substance use and questions about how the lyrics relate to the clients' own substance use and recovery), a recreation music therapy condition ('music bingo' plus discussion), or a (non-music related) verbal therapy condition and measured differences between groups in cravings. Results revealed no statistically significant differences between groups at post-test, though participants in both music therapy conditions had lower mean craving scores than participants in the verbal therapy condition. These results suggest that music had a favorable impact on cravings, however the study did not gather pre-test data and therefore it is unclear whether music did indeed decrease cravings from pre- to post-test.

Experimental studies

In one of the few experimental studies using a clinical sample, Jansma, Breteler, Schippers, De Jong and Van der Staak (2000) assigned 40 adults in inpatient treatment for alcohol misuse to a neutral mood condition, a depressed mood condition, and a distressed mood (using music film clips) in order to test the influence of mood on cravings in the presence of alcohol cues. When participants were exposed to an alcohol cue, their desire to drink increased, self-efficacy (i.e., the belief of being able to resist the urge to drink) decreased, heart rate decreased, and blood pressure and heart rate variability increased. Alcohol cue reactivity was clearly found, but was not related to the musically induced mood conditions.

A more recent study of 19 adults in residential treatment for substance use disorders and 19 healthy adults matched for age and