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The Nontheistic Sacred: The Psychological Functions of Metal Music and Artefacts

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Abstract

The psychological functions of the nontheistic sacred in a secular context (metal music culture) were examined for their consistency with previous studies of the sacred in religious contexts using two studies. The first experiment examined music as a form of nontheistic sacred through a comparison of death metal fans (n=89) listening to death metal or hard rock. The second experiment examined how some metal cultural artefacts were perceived as sacred by metal fans (n=52), and how their loss or defilement was experienced when compared to non-sacred artefacts. The first experiment found that the death metal music was perceived as more sacred than hard rock music to the metal community, it promoted higher levels of positive affect, and it was associated with significantly higher levels of prosocial behavioural intentions, social relatedness, mood maintenance, and self-awareness, with no differences in empathy and negative affect. The second experiment found that acts of desecration of sacred items, when compared to non-sacred items, led to a higher state of anger and the loss of the items led to significantly higher levels of depressive symptoms and anxiety. The two experiments present evidence that the nontheistic sacred is experienced within the secular context of metal music in terms of functions and effects consistent with previous literature exploring the sacred in religious contexts.

Keywords: sacred, nontheistic, sacred loss, desecration, sanctification, psychological functions, heavy metal, death metal, music culture

The Nontheistic Sacred: Psychological Functions of Metal Music and Artefacts

The functions of the sacred have been explored and theorized within theistic contexts, but only recently has attention been directed towards determining if the same effects apply within nontheistic contexts. The sacred is a quality pertaining to individual and collective systems of meaning, distinct from the ordinary or mundane (Durkheim 1976/1912), characterized by a sense of specialness or pricelessness (Taves, 2009; Atran & Axelrod, 2008) and timelessness (Pargament et al., 2017). It has been described as a manifestation of the divine, existential meaningfulness, or as an ultimate concern perceived by an individual (Harris et al., 2018). Sacredness is a concept that has been criticized for its conceptual nebulousness and disconnect from utilized methodologies (Paloutzian & Park, 2021), so it can be more useful to approach it in terms of ascriptions and functions. Sacredness involves attributing meaning by the perceiver to something including but not limited to objects, ideas, and values (Pargament, 2013). Attributing sacredness to something means to *set it apart* for its meaning-making importance to the individual. Ascribing sacredness to an aspect of life has been associated with greater commitment towards that aspect that includes greater dedication of time, elicitation of intense emotionality, and as a powerful personal and social resource that it utilized throughout the lifespan (Pargament & Mahoney, 2005; Pargament et al., 2013). Sacredness is associated with eliciting feelings of awe, wonder, reverence, gratitude, inspiration, strength, support, and as a way of coping with stressors in life that result in greater satisfaction and meaning in life (Mahoney et al., 2021; Pargament, & Mahoney, 2005; Schnitker & Emmons, 2013). These positive functions reinforce the ascription of an aspect of life as sacred, which results in high motivation to pursue, preserve, and protect sacred aspects of life (Mahoney et al., 2021). Past research has shown that the relationship that people have with the theistic sacred is emotionally

intense, and that the loss of the sacred can be emotionally devastating (Pargament & Mahoney, 2005a). The current research sought to examine if the same functions would apply to the nontheistic sacred outside of a primarily religious population.

Recent scholarship has suggested that the sacred need not happen only within a religious milieu (Knott, 2013). The sacred can be understood as orthogonal to religion, which means that it can be conceived as theistic or nontheistic. While the theistic sacred manifests a quality emanating from a god or divine power, the nontheistic sacred manifests related qualities of transcendence, ultimacy, and boundlessness (Pargament et al., 2017; Pargament & Mahoney, 2005a). This nontheistic sacred has also been referred to as the 'secular sacred' (Knott, 2013; Bennett, 2014). Despite this theoretical work in expanding the notion of the sacred beyond the religious sphere and the contested difficulties that stem from that expansion (Deal & Magyar-Russell, 2018), there hasn't been much empirical exploration of how different or similar the nontheistic sacred might be in the context of a secular culture, particularly its psychological functions, with the exception of recent work (Deal et al. 2022; Deal & O'Grady, 2020) that looked at the sanctification of nature for environmental activists, which evidenced a transformative role of the nontheistic sacred for identity, coping, and participation in society that is emotionally intense. A potential negative consequence of such functions is that when the value of the sacred is breached, such as when aspects of nature that are perceived as sacred as violated or destroyed, so is its meaning-making and comforting function, leading to negative psychological effects. There is evidence that such negative effects, including a sense of depression, occur when a sacred object is lost or desecrated (Pargament et al., 2005), and that this experience may be amplified for nontheists that feel personally responsible – instead of God

or a transcendent reality - for protecting the sacred from desecration (Deal & Magyar-Russell, 2022).

In this article, we focus on metal music culture as a starting point to expand the empirical investigation of the sacred into nontheistic domains due to its similarities to religion functionally and aesthetically. Parallels between religion and metal music culture have been drawn before. For example, metal musicians have been likened to shamans for their role in providing transcendent experiences to members of the metal music community (Weinstein, 1991: 88); metal fans use terminology consistent with transcendent religious experiences in their descriptions of live music (Coggins, 2016); and metal culture affirms a shared worldview and identity which is shaped by a selection of attire, tattoos, dancing in a metal style (Snell & Hodgetts, 2007), and dressing in a 'uniform' way even outside of metal cultural events (Guibert & Guibert, 2016). Some have likened the parallels between religion and secular institutions as to being an *implicit* religion or a "secular faith" (Bailey, 2010). To clarify, the possible presence of sacred character in a music culture would not be unique to heavy metal, with other examples including the profound meaning-making and coping roles of blues music for African American society during the early 20th century or the affectively intense experience of fanatical Beatles' fans during the 1960s that spoke to rebellion against gender confines (Rohr, 2017).

The aim of this article is not only to empirically evidence the nontheistic sacred in a secular culture but to examine its psychological functions. Past research has associated the theistic sacred with comfort and security during periods of anxiety or turmoil (LaMothe, 1998), a sense of social cohesion or identity (Boyce-Tillman, 2017), mood maintenance and positive affect (Watts, 2007; Phillips III & Pargament, 2002; Davis & Kiang, 2016; Sanders et al., 2015), self-awareness and enhancement (Sedikides & Gebauer, 2010), social relatedness, prosocial

intentions (Friedman & Jack, 2018; Shariff et al., 2016), and empathy (Ellison et al., 2011). These factors are explored for their associations with the nontheistic sacred in metal music culture in the current article, some of which have already been identified as being related to metal music (Rowe & Geurin, 2017; Sharman & Dingle, 2015).

Metal music culture has previously been associated with functions traditionally associated with the sacred, including the ability to provide meaning-making, cultural identity, rituals, and a sense of belonging (Moberg, 2012). The sacred can take many forms since anything (e.g., objects, places, events) can be ascribed the quality of sacredness. The two dimensions we will explore here are music and special cultural artefacts associated with metal culture and musicians. Music is a cornerstone of the metal identity, with metal music community members being more dedicated to their preferred style of music compared to other music fans, so music is a strong candidate for perceived sacredness in metal culture (Hooten, 2015), as sanctification of an aspect of life can lead to greater commitment, including through dedication of time and greater emotionality related that aspect (Mahoney et al., 2021; Pargament & Mahoney, 2005; Mahoney et al., 2013). We expect that metal music and its objects are likely to be perceived by its fans as imbued with sacred qualities, such as a sense of transcendence and boundlessness.

Metal music genres, including extreme subgenres like death metal that incorporate violent lyrics and imagery, have been shown to stimulate positive emotions for members of the metal music community (Sun et al., 2019; Thompson, Geeves, & Olsen, 2019). Contrary to claims that metal music makes people angry (Selfhout et al., 2008), it has been shown to help individuals process anger and regulate emotions (Sharman & Dingle, 2015). Moreover, listeners report using music as a form of self-therapy for mood maintenance, particularly among dedicated listeners (Greasley & Lamont, 2011; 2006; Messick et al., 2020). Metal music has been

suggested to be particularly effective in positive psychological functioning because the common lyrical themes of hopelessness, despair, and anger provide a sense of relatedness and validation for listeners (Messick et al., 2020; Wooten, 1992).

Given this previous research, we considered metal music culture to be a plausible candidate to explore the psychological functions of the nontheistic sacred in a secular culture. In Study 1, we examined to what extent metal music was perceived as sacred and its positive psychological effects when compared to a control condition. In Study 2, we focused on the potential negative effects of the nontheistic sacred by examining the loss and defilement of special artefacts. Overall, we hypothesized that the positive and negative effects found in these two experiments would mimic past studies on the psychological functions of the sacred within theistic contexts, thus showing that the nontheistic sacred may fulfill psychological functions similar to those found for the theistic sacred.

Study 1

This study examined the effects of listening to metal music on levels of affect, mood maintenance, self-awareness, social-relatedness, empathy, prosocial intentionality, and perceived sacredness to the self and the associated metal community. We expected that listening to metal music would lead to positive effects on a range of psychological variables associated with wellbeing and higher levels of perceived sacredness when compared to a style of music that was expected to be perceived as enjoyable, but not sacred.

Music is a form of the sacred that is affiliated with most, if not all, faiths and religious traditions (a possible exception are some strands of Islam that discourage music because of its association with dance). There are observable parallels between religious events and a heavy

metal concert: Both elevate central figures on a stage with music as a key facet of the event, they can include ritualistic forms of synchronous movement and dance, and act as communal experiences that promote social relatedness for an ingroup. This study sought to test empirically whether metal music is functionally similar to the theistic sacred. We hypothesised that metal songs considered sacred by metal fans would be functionally similar to the functions of the theistic sacred, whereas music without sacred status would not fulfil these functions.

To ensure that the focus of this study would be nontheistic, we chose death metal music and culture, as its community is rather vocal about its secularism and distaste for theistic ideas (Purcell, 2015). We recruited death metal fans and selected as 'sacred stimuli' songs that are perceived as particularly special by the death metal community based on popularity during the formative years of the genre; for the control condition, we chose popular hard rock songs, which is a genre considered enjoyable by most metal fans (Guibert & Guibert, 2016). We expected that when listening to 'special' death metal songs *versus* listening to hard rock songs participants would report higher levels of perceived sacredness to the self and to the metal community, prosocial behavioral intention, positive affect, mood maintenance, social relatedness, and self-awareness, on the basis that previous research on the theistic sacred demonstrated these psychological effects (Mahoney et al., 2022; Pargament & Mahoney, 2005a; Mahoney et al., 2013). We had no expectations as to whether sacred music would generate higher levels of empathy than non-sacred music, since listening to music in general has been associated with high levels of empathy and it is less clear if designation of sacredness would result in higher levels empathy comparatively (Greenberg et al., 2015).

Method

Participants

Participants volunteered to participate in response to study advertisements posted in death metal themed groups on social network websites (e.g., Facebook, Reddit). Participants were included if they self-identified as fans of death metal music. Eighty-nine participants completed the study; 83.1% identified as male, 14.6% identified as female, and the remaining two individuals (2.2%) identified as non-binary. Mean age was 33.00 years old (*SD* = 9.14, range: 17-64). Most participants were White/Caucasian (82%), followed by Latino (7.9%), Asian (5.6%), or other (4.5%). Most participants were from the United States (47.2%), the United Kingdom (25.8%), Canada (4.5%), and Germany (3.4%). Most participants identified their religious affiliation as 'none' (34.8%), followed by atheist (29.2%), or agnostic (15.7%). A few identified as pagan (4%), or Christian (3.4%), and those in the 'other' category included affiliations such as Buddhism, Wicca, or Judaism. Concerning education, many participants had a Bachelor's degree (34.8%), had attended some college (24.7%), completed high school (13.5%), or completed a Master's degree (11.2%). A minority had less than a high school degree (2.2%) or had a doctorate (3.4%). These demographics are consistent with past studies of metal fans (e.g. Ury-Petesch, 2016; Guibert & Guibert, 2016).

Procedure

Participants listened to a series of eight music clips, each of 30 seconds, divided into two blocks (death metal versus hard rock). The order of the four songs within each block, and of the two blocks, was randomized for each participant (see Appendix Table 1 for song list). After each song clip, participants were asked to rate level of familiarity with the song, positive/negative affect, and the sacredness of each song. Measures of prosocial behaviour intention, empathy, and psychological needs were filled in after each of the two music blocks.

Materials

Two 4-item measures were used to identify the level of sacredness through items that asked about importance, historical significance, meaning-making, and perceived specialness, characteristics that have been associated with the sacred (Pargament & Mahoney, 2005). The first measure assessed how sacred the song was to the individual ($\alpha = .92$, e.g. "To what extent do you feel that this song is sacred to you?"), and the second measured how sacred the songs were perceived to be for the death metal community ($\alpha = .94$, e.g., "To what extent would you expect other death metal fans to find this song to be sacred?"). Both scales utilized a 1-5 point Likert scale (1 = Not at all; 5 = Very much). The full scales can be found in Appendix Table 2.

The shortened PANAS (Positive & Negative Affect Schedule; Ebesutani et al., 2012) was used to measure the affective response to each song clip (e.g., to what extent does this song clip make you feel cheerful). The measure of positive affect had strong reliability ($\alpha= .92$), but negative affect was less reliable ($\alpha = .52$), likely because neither type of music was anticipated to generate negative affective responses.

Two types of prosocial behavioural intention were used: the Prosocial Behavioral Intentions Scale (e.g., "to what extent would you comfort someone you know after they experience a hardship"; Baumsteiger & Siegel, 2018), and the Social Generativity Scale (e.g., "I feel that I ought to carry out activities in order to ensure a better world for future generations"; Morselli & Passini, 2015). The prosocial behaviour intention ($\alpha = .83$) and social generativity scales ($\alpha = .92$) had strong internal reliability scores.

Empathy was measured using the eight-item version of the Empathy Quotient (e.g., "I find it easy to put myself in somebody else's shoes"; Loewen et al., 2009). The shortened Empathy Quotient was selected due to its wide application in the literature and for its short length. The empathy quotient had moderate internal reliability ($\alpha = .69$).

Finally, participants filled out an adapted version of the 'Psychological Functions Fulfilled by Music' scale in response to the four music clips (Schäfer et al., 2013), including the subscales mood maintenance, self-awareness, and social relatedness. The scale was shortened to six items for each of the three subscales, and the wording of some of the original English translations were altered to improve clarity. The adjusted scale can be found in Appendix Table 3. The Psychological Functions Fulfilment subscales had satisfactory reliabilities (mood maintenance, $\alpha = .86$; self-awareness, $\alpha = .89$; social relatedness, $\alpha = .91$).

Results

A one-way repeated measures ANOVA was run with two levels of a single independent variable (type of music: death metal or hard rock) and ten dependent variables (perceived sanctity to the self, perceived sanctity to the death metal community, positive affect, negative affect, prosocial behavioural intention, social generativity, self-awareness, social relatedness, mood maintenance, and feelings of empathy). The compared scores and statistics can be found in Table 2. There was a significant effect of the type of music on the dependent variables, Wilks' Lambda = .13, $F(10,79) = 53.24$, $p < .001$, $\eta_p^2 = .871$. The observed power was >.99. As expected, the popular death metal songs were perceived as more sacred to the self and to the death metal community than popular hard rock songs. Moreover, listening to the death metal stimuli, when compared to listening to hard rock stimuli, resulted in significantly higher levels of perceived sanctity to the self and to the death metal community.

Consistent with the hypotheses, the death metal songs generated significantly higher levels of positive affect than the hard rock songs, while there was no significant effect on the experience of negative affect. Both forms of prosocial intentions (prosocial intentionality and

social generativity) were higher after listening to death metal as compared to hard rock music, but participants reported similar levels of empathy across both conditions.

Table 1

Means, standard deviations, and comparative statistics for perceptions and affective reactions following listening to death metal versus hard rock songs.

Measure	**Death metal**	**Hard rock**	*F(1,88)*	*p-value*	η_p^2
Sacred to the self	3.06 (0.97)	2.10 (0.60)	64.89	<.001	.424
Sacred to the community	3.99 (0.70)	2.06 (0.61)	409.50	<.001	.823
Positive Affect	3.53 (0.79)	2.84 (0.80)	52.55	<.001	.374
Negative Affect	1.10 (0.19)	1.14 (0.26)	2.64	.11	.029
Prosocial Intentionality	4.41 (0.65)	4.25 (0.76)	11.62	.001	.117
Social Generativity	3.38 (1.02)	3.06 (1.04)	25.48	<.001	.225
Self-Awareness	3.57 (0.98)	2.11 (1.01)	128.18	<.001	.593
Social Relatedness	3.72 (1.05)	2.52 (1.11)	99.46	<.001	.531
Mood Maintenance	4.29 (0.70)	2.91 (1.17)	100.88	<.001	.534
Empathy	3.71 (0.64)	3.70 (0.65)	.04	.84	<.001

Note. Values reported are means (standard deviations). A Bonferroni correction was applied due to the use of multiple comparisons (ten comparisons, adjusted $\alpha = .05/10 = .005$).

Some of the largest effect sizes for differences between reactions to the two types of music were associated with psychological needs fulfilled by music: Fulfillment of the self-awareness, social relatedness, and mood maintenance were higher with death metal than hard rock music.

Discussion

In Study 1 we found that the death metal songs were rated as more sacred to the self and to the death metal community compared to the hard rock songs. Moreover, listening to death metal music led to higher levels of positive affect, prosocial intentions and social generativity, self-awareness, social relatedness, and mood maintenance for death metal fans when compared to listening to hard rock music. We found no differences between the two conditions for negative affect and empathy. These results were not surprising, since neither enjoyable nor sacred music should generate negative affect, and music in general is associated with empathy (Greenberg et al., 2015). This suggests that increased perception of sacredness does not add any additional empathetic response beyond what enjoyable music alone generates. Together these results provide early evidence to suggest that the nontheistic sacred fulfils psychological needs for a secular culture similar to what those of the theistic sacred do for religious cultures (Pargament & Mahoney, 2005a; Mahoney et al., 2013).

Study 2

Whereas the first study investigated sacred music, the second study focused on objects, with a primary goal of assessing if objects ascribed as sacred within metal culture would fulfill the same functions as religious objects. Sacred objects have been described as resources that help fulfill three functions: 1) they provide a sense of personal identity, continuity, and cohesion; 2) sooth and comfort individuals and communities in times of stress; and 3) help link the present with loved ones from the past and hopes for loved ones in the future. Opposing parties in history have frequently been aware of the importance of sacred objects to personal and social identity

and cohesion, so these are objects that have been specifically targeted in times of conflict because of the great consequences experienced by those that sanctified them (Pargament & Mahoney, 2005). The second experiment assessed the negative consequences of a sacred object being lost or defiled. This study follows sanctification theory (Pargament et al., 2005; Pargament & Mahoney, 2005a), according to which people experience more severe emotions when they appraise losses as sacred losses or as desecrations. Sacred loss is the more general loss of a sanctified part of someone's life, whereas desecration happens when sanctified parts of people's lives are lost *and* violated. Both of these appraisals can only arise when individuals assign a sacred meaning to some aspect of their life.

Desecration appraisals have been examined in romantic relationships where it was found that participants who were hurt in the relationship and who appraised the hurt or betrayal as a desecration of a sacred relationship, experienced more negative affect and physical health symptoms, and poorer mental health (Magyar et al., 2000). Moreover, sacred loss and desecration appraisals in the context of significant negative life events of the past two years have also been associated with greater emotional distress in a primarily Protestant and Roman Catholic sample (Pargament et al., 2005). It was also found that sacred loss appraisals resulted in higher levels of depression and anxiety, whereas desecration appraisals resulted in higher levels of anger.

There have been previous attempts to assess sacred appraisals, such as the sanctification of the body (Homan & Boyatzis, 2009; Mahoney et al., 2005a; Mahoney et al., 1999), of learning (Phillips & Kitchens, 2016), of strivings (Mahoney et al., 2005b), of parenting (Weyand et al., 2013), and of marital sexuality (Hernandez et al., 2011). However, all these studies treat the sacred as a manifestation of God, rendering them explicitly theistic. Furthermore, none of the

manifestation of God scales address the sanctity of material objects, which is a widespread human concern. Objects have been explored in terms of sympathetic magic (Hood et al., 2010), but not extensively in terms of sacred presence, transference, or representation (e.g. transference of special qualities from one's corporeal self to an object in a magical way; Nemeroff & Rozin, 1994). In a secular context, a record collection may be seen as an extension of the self that shares the glory of the music between the owner of the collection and the artist that composed the music (Giles et al., 2007).

This idea of objects as being an extension of the self helps explain the notion of being 'contaminated' in both positive and negative ways through contact with people's possessions, meaning that contact with people's possessions can influence them in positive and negative ways (Gjersoe et al., 2014). As noted by Newman et al. (2011), consumers of celebrity memorabilia feel that there is some immaterial quality or 'essence' of the celebrity that has been transferred to the object through physical contact. Similarly, consumers of metal music might believe that their metal artefacts contain an immaterial quality transferred from musicians that are prominent figures in their culture. These special transferable qualities can also play a role in how the destruction or loss of an item is perceived (Bloom et al., 2010). The loss of the sacred in the context of metal music culture has not been previously explored, however, parallels can be drawn from the devastating psychological losses felt by touring metal musicians following the COVID-19 pandemic that resulted in the temporary end of concert tours and live performances globally, effectively ending a fundamental part of their lifestyle that was crucial for mood maintenance and meaning (Messick, 2021).

We also had an interest in gaining insight into the intentions that participants had with their sacred cultural artefacts after their deaths. The desire of participants to pass on or be buried with

their most sacred items is consistent with the notion that people strive to protect and preserve the sacred, and that people react strongly to its loss or violation (Pargament et al., 2017; Walsh et al., 2021).

This study had three aims: (1) To determine the type of items that are considered sacred in the metal community; (2) To test the hypothesis that defilements of metal sacred objects (desecrations) result in significant emotional responses (i.e., anxiety, depression, anger) which differ from the loss of sacred or non-sacred objects; and (3) To explore what participants would want to happen to their most sacred item after their death and how intense the loss of that item would feel.

Overall, this study investigated the experience of two types of sacred loss within metal culture by using scenarios that could be appraised as sacred losses or desecrations. We first identified potential sacred metal artefacts, which were confirmed by self-reports about participants' own most sacred metal artefacts, then similar objects were applied as experimental stimuli in loss and desecration vignettes, together with a control condition (non-sacred loss). Consistent with previous research on sacred loss and desecration within a primarily religious sample (Pargament et al., 2005), it was expected that sacred loss appraisals in the context of a secular culture would result in greater feelings of anxiety and sadness than non-sacred loss, and where loss was perceived as a desecration this should lead to significantly higher levels of anger than non-sacred loss and sacred loss without desecration.

Method

Participants

Fifty-two participants aged 18 years of age or older and self-identified as fans of metal music took part in this study. Most participants were male (75%; female 25%), and their mean age was 32.13 years old (*SD* = 8.72). Most participants were white/Caucasian (82.7%; 1.9%

black; 1.9% Asian; 9.6% Latino; 3.8% other). Half of the participants were single and had never been married whereas 44.2% were married or living with a partner, and 5.8% were divorced. Concerning religious affiliation, the largest percentage identified themselves as atheist (25%), followed by none (23.1%), Christian (13.5%), Agnostic (11.5%), Pagan (7.7%), and other. The level of education varied greatly, with 7.7% having attended some high school or less, 17.3% graduated from high school without further education, 28.8% attended some college, 5.8% had an Associate degree, 26.9% had a Bachelor's degree, 5.8% had a Master degree, and 5.8% had obtained a PhD. Most participants were from the United States (46.2%), the United Kingdom (17.3%), Canada (9.6%), or Germany (5.8%).

Procedure

A within-subjects experiment was conducted with three conditions (desecration, sacred loss, and non-sacred loss as the control) through an online survey. First, participants were given a list of potentially sacred metal artefacts and asked to identify the most important item in their metal collection or wardrobe, or that they associated with their metal worldview. This item could be a piece of memorabilia or an artefact, such as a battle jacket, a rare or signed album, a photograph, a guitar pick, etc. Then participants were asked to choose one particularly special item from the longer list and, after identifying this item, they were asked open-ended questions to describe it including about what the item meant to them, how it would change their lives if the item was lost, and what they wanted to happen to the item after they died. Next they read a series of six vignettes (see Appendix Table 4) and filled out measures about their affective responses following the narrated events (anxiety, depressive symptoms, anger) and the extent to which they appraised each described situation as a sacred loss or desecration. The vignettes described fictitious individuals and their connection with an object. The study design was within-

participants, so all participants responded to all of the six vignettes, but the order of the vignettes was randomized for each person.

Materials

There were three types of vignettes and two items of each type: sacred loss, desecration, and non-sacred loss. The protagonist's gender was counter-balanced in each pairing, with a male main character in one story and female in the other. The sacred loss and desecration vignettes described the bond between the person in the story and a sacred metal artefact. In the case of the desecration vignettes, the sacred items were defiled as the musician associated with the item did something that broke the positive bond between the protagonist and the item (e.g., the musician was revealed to be a rapist or a paedophile). For the sacred loss vignettes, there was a loss of the item, but without any immoral action. The last two vignettes described a person experiencing the loss of a non-sacred item, such as a pair of jeans being ruined.

After reading each vignette, we assessed whether participants identified the narratives as nontheistic sacred loss or desecration through the Sacred Loss and Desecration scale (adapted from Pargament, Magyar, Benore, & Mahoney, 2005). Both subscales had strong internal reliability (Nontheistic loss, $\alpha = .91$; Nontheistic desecration, $\alpha = .88$).

Following the sacred loss and desecration appraisal items, participants filled out scales on depressive symptoms (shortened CES-D Depressive symptomatology; Karim et al., 2015), anger and anxiety (taken from the State-Trait Anger Expression Inventory; Spielberger, 1991, as used in Pargament et al., 2005). All scales had strong internal reliability (Anger, $\alpha = .89$; Anxiety, $\alpha = .85$; CES-D, $\alpha = .86$).

A 5-item sacred connection scale was used in place of a theistic manifestation of God scale, to assess how special the item was to the participants (e.g., "This is a sacred item to me

that I would never sell"). The items emphasized qualities associated with the sacred that include presence, specialness, transcendence, worship, and a connection with something that is difficult for the perceiver to describe consistent with the sanctification of a perceived heroic figure of worship (Pargament & Mahoney, 2009). Items were rated across a five-point Likert scale and the scale had strong reliability ($\alpha = .84$). See Table 5 in the Appendix for full item list.

Results

The most frequently mentioned sacred metal objects included an item signed by or acquired from a musician (32.6%), a rare or original pressing of a CD, vinyl, or cassette (23.1%), a shirt or hoodie (9.6%), a battle jacket or vest (7.7%), a metal-related tattoo (7.7%), an album that the participant performed on (7.7%), followed by a patch, a photograph with a musician or metal friends or 'other' (3.8% each). A repeated measures ANOVA revealed that there was a significant effect of the type of vignette on sacred loss appraisals, desecration appraisals, and the experience of anger, anxiety, and depressive symptoms in response to the vignettes, $F(10,196) = 35.87$, $p < .001$, $\eta_p^2 = .647$. A Bonferroni correction was used to account for multiple comparisons (15 comparisons, $\alpha = .05/15 = .003$) in the pairwise comparisons. See Table 2 for descriptive and comparative statistics. Sacred loss and desecration vignettes were significantly more appraised as sacred loss than control vignettes ($p < .001$), though the sacred vignettes were rated similarly ($p = .54$). Desecration vignettes were scored significantly higher on desecration than either sacred loss vignettes ($p < .001$) or control vignettes ($p < .001$).

Desecration vignettes resulted in significantly higher levels of anger than in the sacred loss ($p < .001$) and control loss conditions ($p < .001$). Anger following the sacred loss and control loss conditions did not significantly differ ($p = .15$). Both sacred loss and desecration vignettes generated higher levels of anxiety than the control vignette (p's $< .001$), but they did

not differ significantly from each other (p = .84). Sacred loss vignettes generated significantly higher levels of depressive symptoms than control vignettes (p < .001), but not the desecration vignettes (p = .007). Desecration vignettes also generated higher level of depressive symptoms than the control vignettes (p < .001). A summary of the findings can be found in Figure 1.

Table 2

Means, standard deviations, and comparative statistics for event appraisals and resulting emotions following vignettes

Measure	**Sacred loss vignette**	**Sacred loss w/ desecration vignette**	**Non-sacred loss vignette**	$F(2,102)$	*p-value*	η_p^2
Appraised as sacred loss	3.73 (.97)	3.56 (1.05)	1.98 (.76)	91.15	<.001	.641
Appraised as desecration	2.70 (1.09)	3.97 (.85)	1.84 (.69)	98.13	<.001	.658
Anger	3.51 (1.03)	4.10 (.87)	3.26 (1.08)	20.22	<.001	.284
Anxiety	3.27 (.98)	3.13 (1.00)	2.21 (.82)	46.516	<.001	.477
Depression	2.86 (.79)	2.58 (.71)	2.02 (.55)	39.59	<.001	.437

Note. Values shown are means (standard deviations).

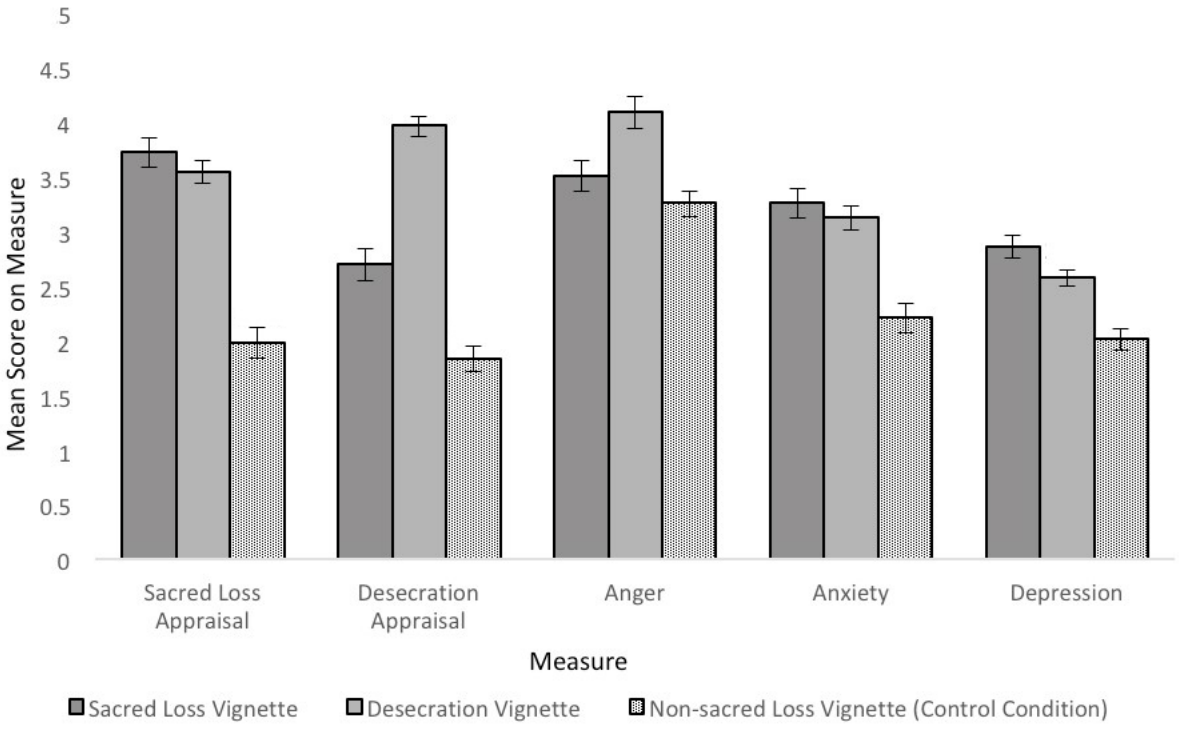
The average score on the sacred connection scale was 4.04 (SD = 0.82), on a five-point scale from 1-5, where 4 reflected a moderate to high connection. Pearson bivariate correlations indicated that there was a significant, positive relationship between believing that a metal artefact had a sacred quality and rating the loss of important artefacts as sacred losses, $r(50) = .50$, $p < .001$, or desecrations, $r(50) = .29$, $p = .04$. In addition, the level of sacred connection when an artefact was lost was associated with greater levels of anger, $r(50) = .47$, $p < .001$, anxiety, $r(50) = .46$, $p = .001$, and depressive symptoms, $r(50) = .30$, $p = .03$. On average, people who believed that the metal cultural artefacts possessed an immeasurable, magical, or sacred quality experienced the loss of those artefacts more severely.

Participants were asked what they wanted to happen to their sacred artefact after they died. Most

participants wanted the item to be passed on to a family member, often their children (40.4%) or passed on to another metal fan that would appreciate it (30.8%). Just over a fifth of the participants wanted to be buried with their sacred item (21.1%). Only 7.7% of participants did not know what they wanted to happen to the item after they die.

Figure 1

Appraisals and Emotional Responses to Vignettes



Discussion

The most sacred artefacts identified by participants included items that were autographed by a musician, used by a musician, or were especially rare. The manipulation of vignettes as describing sacred losses, sacred losses with desecrations, or non-sacred losses was confirmed. Desecration vignettes were accurately recognized as describing desecration, and both desecration

and sacred loss vignettes were interpreted as losses that were more sacred than the control (non-sacred loss) condition. When participants read vignettes describing the loss or desecration of such items, they reacted with significantly higher levels of anger, anxiety, and depressive symptoms when compared to reading vignettes describing the loss of a non-sacred item. As expected, desecration vignettes generated higher levels of anger than sacred loss or control conditions. This is consistent with what was found in the study by Pargament et al. (2005), where responses to desecration of religious sacred items were more frequently externalized through anger and responses, as compared to sacred losses without a violation of the sacred, which were more frequently internalized through depressive symptoms.

This study is limited by the recruitment technique since the adverts explicitly stated that its focus was on objects important to metal culture. This might have affected sample representativeness (self-selection for metal fans who have important metal artefacts).

This is the first study exploring sacred loss and desecration within the context of a primarily secular sample, and its results indicate that these actions are experienced emotionally in similar ways to what has been found in theistic contexts of sacred loss and desecration. Finally, it was found that participants hold these sacred but secular items in high esteem even in relation to their deaths, as they primarily wanted to either be buried with the object, or to pass the artefact on to future generations of metal fans, often within their own family.

General Discussion

Through two studies, we have provided evidence that the nontheistic sacred – as measured within metal music culture – is functionally similar to the theistic sacred in terms of positive effects (mood maintenance, social relatedness, self-awareness, prosocial intentionality, social generativity) and negative effects (anxiety, anger, depression) on psychological wellbeing.

This study extends claims made by Pargament et al. (2017) into a new realm: nontheists engage in sanctification, imbuing ordinary objects with aspects related to transcendent reality. Oman (2013) noted that the qualities relating to the sacred can vary from culture to culture. In the context of metal music culture, we found that music and artefacts were regarded as special; the negative consequences of the loss or defilement of special artefacts lends support to the view that such artefacts are perceived as sacred to these individuals.

This article also adds to the sparse empirical research on sacred music. Research has theorized that music can be an instrument for reaching sacred moments (Beck, 2019), but this is one of the first studies to attempt to measure psychological functions associated with music that might be regarded as sacred to the listener. Music contributes to the spiritual development of some young adults, including towards constructing personal worldview, relating to current life questions, and as a coping mechanism that relates to questions about spiritual well-being (Murtonen, 2018), but these areas need more empirical investigation.

Perceived desecration can have significant impacts on individuals. Consider, for example, the sexual abuse scandals in the Catholic church that are associated with decreased church attendance and charitable giving (Bottan & Perez-Truglia, 2015) and increased conversions towards other religious faiths (Hungerman, 2011). Parallels can be drawn with nontheistic cultures. Some events can directly impact identity and its relationship with the nontheistic sacred, such as when prominent figures in metal music culture are revealed to be a paedophile or domestic abuser (as measured in hypothetical vignettes in the current study), which could have similarly devastating consequences for members of metal music culture.

Both studies may be limited due to their use of questions to measure sacredness that, although based on Pargament & Mahoney's theoretical framework about sacredness, were

largely new. Due to their correspondence with validated scales on nontheistic loss and desecration, it is unlikely that the new items were confounding, but future research should more vigorously develop measures for different forms and aspects of the sacred. The studies are also limited in what functions of the sacred are encompassed, as meaning-making functions are pivotal for the sacred but the current studies are limited at speaking to those functions.

Although the overwhelming majority of psychological studies on the functions of sacredness have focused on its positive role (e.g. meaning making, alleviating stress and anxiety), the negative impact of the sacred, when it is breached or violated, is as strong an evidence for its impact on everyday life and there should be more empirical studies of this kind. We hope that this article will pave the way for such line of research, as well as for the psychological study of nontheistic forms of the sacred.

Data availability statement

The data that support the findings of the study are available from the corresponding author, K. J. Messick, upon reasonable request.

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Appendix

Table 1

Song Clips used as Musical Stimuli

Death metal songs	Hard rock songs
Cannibal Corpse – Hammer Smashed Face	ACDC – Back in Black
Morbid Angel – Chapel of Ghouls	Guns N' Roses – Welcome to the Jungle
Suffocation – Liege of Inveracity	Queen – Bohemian Rhapsody
Death – Pull the Plug	Twisted Sister – I Wanna Rock

Table 2

Measures of sacredness to the self and sacredness to the death metal community

Sacred to the self
1. How much of an impact does this song have on you? (How much does it move or affect you?) 2. To what extent do you feel that this song is important to you? 3. In Decibel magazine's Napalm Death special issue, Matt Harvey (Exhumed, Gruesome) said that "Music listeners cherish epiphanies that last a lifetime - moments when a piece of music changes your perspective of what's possible and what you're into." To what extent has this song ever made you feel that way? 4. To what extent was this song important for you when you were getting into death metal?
Sacred to the community
1. To what extent do you think that this is an important song to the history of death metal? 2. To what extent would you expect other fans of death metal to greatly enjoy or appreciate this song? 3. To what extent would you expect other death metal fans to find this song to be very special? 4. To what extent would you expect other death metal fans to rate this song as important for getting into death metal?

Table 3

Psychological Needs from Music Scale

Mood maintenance
1. Take your mind off things. 2. Avoid boredom. 3. Enhance your mood. 4. Help you relax. 5. Make things (chores, work, etc.) seem effortless. 6. Help calm you down when angry.
Self-awareness
1. Think about yourself. 2. Helps you think about your thoughts and emotions. 3. Think about your identity. 4. Find your own way, your own path in life. 5. Learn about yourself. 6. Be more contemplative.
Social relatedness
1. Feel like you belong to a given social group. 2. Feel connected to all people who like the same kind of music. 3. Feel connected to your friends. 4. Feel connected to others. 5. Feel like you belong. 6. Have something to talk about with your friends.

Note. Adapted from Schäfer, Sedlmeier, Städtler, & Huron, 2013

Table 4

Sacred loss, desecration, & nonsacred loss (control) vignettes

Sacred loss
Roberto was an avid collector of vinyl albums for many years. His favourite album that he owns was a 1988 original pressing that regularly sells online for around a thousand dollars. The album is Roberto's most prized possession, and it is one thing that he proudly shows to any guests that visit his house. Recently, Roberto lost his job, and he is struggling to pay off his ever-increasing debts. He did not have a means of paying his most recent housing bill, which was for a thousand dollars. Roberto was unwilling to become homeless, so he had to find a way to pay off the payment in time. Although Roberto loves his 1988 first press album more than anything else he has, it seemed as though the only way to keep his house was to sell his favourite album. Roberto sold his album, knowing that he can never replace it.
Rebecca had idolized her favourite guitarist ever since she was a child, when her father first introduced her to metal music. When she turned 8 years old, her father took her to see her favourite band. At the concert, Rebecca and her father were towards the front of the stage, right in front of the band. Rebecca's father let her sit on his shoulders throughout the concert so that she could see over all of the other people in attendance. At the end of the show, Rebecca's favourite guitarist handed Rebecca a signed guitar pick that he had been using to play that night. Rebecca is 18 now, and that guitar pick is still a very special object for her, both for being something that connects her to metal, and for being something that connects her to her father. Recently, Rebecca moved to a new home, and her guitar pick was lost somewhere in the move. She would never see it again.
Sacred loss with desecration
A few years ago, Tobias came across his favourite band as they were exiting their tour bus, prior to performing at a concert. He excitedly approached the band and told them how much their music had meant to him. They enthusiastically invited him onto their tour bus, and humoured Tobias' request to take a photo with him. That night was very special to Tobias, because it confirmed for him that not only did his favourite band make music that touched him on a personal level, but also, that they were genuinely decent human beings. Tobias proudly kept the photo of him and the band framed in the centre of his living room. The picture was regularly a source of conversation between him and his friends. Tobias saw on the news that a female fan of the band had been raped by the band on their tour bus. The band was found guilty of the charges. Tobias was outraged that his idols could act in such a way, and so Tobias destroyed the photo and everything he owned by the band. He could no longer listen to them after what they had done.

Alexandra's favourite band had helped her get through many hard times in her life. She related to the lyrics, and the intensity of the music helped Alexandra get motivated to tackle life's obstacles. The second time that Alexandra saw the band live, she was able to meet the members after the show. The guitarist of the band signed her favourite album. After that day, the signed album was always the centrepiece of Alexandra's record collection. The signed album meant a lot to her. Recently, metal news tabloids had begun reporting on the arrest of Alexandra's favourite guitarist. It was clear that the guitarist was a paedophile, and the content that was described by authorities on the guitarist's computer made Alexandra sick to her stomach. Alexandra could no longer bear to look at the signed album that was so important to her. Alexandra destroyed the album.
Nonsacred loss
Chelsea is an avid reader. She looks forward to every summer, because she likes to read through as many books as she can. This is a tradition that Chelsea had been continuing for 15 years, starting with when she was in high school. This summer, she had a stack of eight books ready, which she had sitting next to the couch at home. The books were carefully chosen from top selling lists of books about drama. Some of the books were recommended through a website that Chelsea regularly purchased books from. Chelsea's dog is usually well behaved, but the dog was especially rambunctious one day while Chelsea was at work, and she chewed up all of Chelsea's new stack of books. When Chelsea returned home from work, she was upset that her dog had chewed up this summer's reading list. The books were ruined.
Every year, Sam would receive a gift card for his favorite clothing store for his birthday. This year, he was eager to buy himself some new jeans. He took his time at the clothing store, trying on a dozen pairs of jeans before deciding on a pair that he really liked. They fit him well, were stylish, and were within the budget of his gift card. He was looking forward to wearing them the next time he would hang out with his friends. Sam excitedly purchased his new pants, and went home to wash them. As Sam sorted his laundry, he was unaware that the cap on a nearby bottle of bleach was loose. Sam tripped on her laundry basket, but caught himself using the shelf that the bleach was on. This caused a chain reaction, and some of the bleach poured onto Sam's new jeans. It wasn't a lot of bleach, but it was enough to ruin his new jeans. Discouraged and upset, he threw his new jeans in the trash.

Table 5

Sacred connection with a music cultural object

Sacred connection scale
1. Part of the musician is still present in the item
2. Something has been transferred from the musician into the item that is difficult to describe
3. I feel a strong connection between myself and the band/musician through this item
4. This item is a sacred item to me that I would never sell.
5. This item has a power that is difficult to describe or explain.