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**This Corrosion: A systematic Review of the Association
between Alternative Subcultures and the Risk of Self-Harm
and Suicide**

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Abstract

Background: Rates of self-harm and suicide are increasing in young people. The literature suggests that individuals who identify with alternative subcultures (e.g. Goth) may be at a greater risk. **Objective:** To explore the prevalence of self-harm and suicide in alternative subcultures and the factors that might contribute to this increased risk. **Method:** Using a systematic strategy, the databases PsycINFO, Scopus, MEDLINE and Web of Science and the E-Thesis online service (ETHOS) were searched for English language only papers, with no restrictions in terms of date of publication. Papers were selected that included data on the relationship between either alternative subculture identity (e.g. Goth) or preference for alternative music (e.g. Heavy Metal) and self-harm or suicide. Ten quantitative papers were included; seven cross-sectional, two longitudinal and one cross-sectional state level comparison study. Two qualitative papers were also included. Studies were assessed by two reviewers for risk of bias **Results:** The findings indicated that individuals who associated with alternative subcultures were at a greater risk of self-harm and suicide. Whilst qualitative papers identified potential mechanisms (e.g. exposure to self-harm and the way self-harm is presented or normalised) there remains limited support for these mechanisms. **Conclusions:** More research is required to understand the association between self-harm, suicide and alternative subculture affiliation, and the factors underlying it. Longitudinal studies and studies focusing on mechanism are particularly important.

Keywords: Alternative subculture, heavy metal, self-harm, suicide, systematic review, Goth

Practitioner points

- The review supports the suggestion that those who identify as belonging to an alternative subculture may be at a higher risk of self-harm and suicidal behaviour. It also presents preliminary evidence that alternative affiliation predicts self-harm over time, and that this effect holds whilst adjusting for a number of likely confounders.
- The findings highlight the importance of increasing the awareness of the victimisation and potential risk that these groups hold and suggests areas for intervention in health, educational and social services.
- The review does not, however, indicate specifically what it is about alternative subculture affiliation (or alternative music preference) that could contribute to the risk of self-harm. Consequently, studies with a greater focus on mechanisms are needed.
- Methodological limitations (e.g. cross-sectional studies, small sample of ‘alternative’ participants, westernised samples) restricted the reliability and validity of the results which impacted on the extent to which the findings could be generalised more widely.

Introduction

Suicide and self-harm are global public health concerns (Chan et al., 2016), with over 778,000 deaths by suicide recorded worldwide in 2015 (World Health Organisation; WHO, 2017). Suicide is also a leading cause of death in adolescents (Hawton, Saunders, & O'Connor, 2012) and the second leading cause of death in 15-29 year olds (WHO, 2017). Self-harm is one of the greatest predictors of death by suicide in adolescents (Brent, McMakin, Kennard, Goldstein, Mayes, & Douaihy, 2013; Hawton & Harriss, 2007), increasing the risk by up to 10-fold (Ougrin, Tranah, Stahl, Moran, & Asarnow, 2015). Self-harm can also lead to accidental death (Kehrberg, 1997). It has been reported that alternative subcultures may be at an increased risk of self-harm and suicide, though this is also often considered a myth (Liverpool CAMHS, 2016; Mental Health Foundation, 2017). The current review aims to clarify the association between affiliation with alternative subcultures and self-harm or suicide.

Self-harm can be defined as any intentional “act of self-poisoning or self-injury carried out by a person, irrespective of their motivation” including self-poisoning or self-injury by cutting (NICE, 2013). Behaviours that fall under this term include Non-Suicidal Self-Injury (NSSI; deliberate self-harm without the desire to die) and suicidal behaviours or attempts (self-injurious behaviours with some intent to end life; Nock, 2010; Nock, Borges, Bromet, Cha, Kessler, & Lee, 2008). Self-harm is a common cause for hospital admissions, with over 300,000 people attending hospital each year in the UK (Clements, Turnbull, & Hawton et al., 2016) and between 300,000 and 420,000 people visiting emergency departments in the US yearly for self-inflicted injuries (Owens, Barrett, Gibson, Andrews, Weinick, & Mutter, 2010). Adolescents appear to be a group who are particularly vulnerable to self-harm with 30,000 adolescents in the UK receiving hospital treatment each year for this purpose (Hawton, Rodham, & Evans, 2006).

The US Department of Health and Human Services (HHS, 2012) developed a National Strategy for Suicide Prevention which identified ‘high risk’ groups for self-harm, including ethnic minorities (e.g. South Asian Women) and Lesbian, Gay, Bisexual and Transgender individuals (LGBT; Al-Sharifi, Krynicki, & Upthegrove, 2015; Baldwin & Griffiths, 2009; Bhui, McKenzie, & Rasul, 2007). Alternative subcultures or social groups may be another high-risk group for self-harm and suicide (Rutledge, Rimer, & Scott, 2008). These individuals have a set of group-specific values and can be identified by distinctive styles and tastes to include clothing and music preference. Some recognised alternative groups include Goths, Emos and Punks (Greater Manchester Police; GMP, 2013). The observation of increased self-harm and suicide in such groups has been apparent in the media in recent years, specifically in relation to ‘Goth’ subculture (Bazian, 2015; Cooper, 2015; Curtis & Carvel, 2005). However, recent clinical guidance and self-help information has suggested this association is a myth (Liverpool CAMHS, 2016; Mental Health Foundation, 2017). The lack of available evidence makes it difficult to confirm or challenge these reports.

There are several plausible theoretical pathways to explain the observed link between alternative subculture affiliation and increased risk of self-harm and/or suicide. One possible explanation is that alternative subculture affiliation leads to self-harm, due to increased exposure to additional risk factors, for example victimisation, stigma and hate crime (e.g. verbal and physical aggression; Garland & Hodkinson, 2014). This may contribute to ‘minority stress’ which in turn may reflect the elevated rates of self-harm in these groups (Young, Sproeber, Groschwitz, Preiss, & Plener, 2014). People may then self-harm as way of coping with such stress (Nixon, Cloutier, & Aggarwal, 2002). An example of this victimisation is the social stigma and aggression faced by Sophie Lancaster in 2007, when she was murdered by a group of young males due to her affiliation with Goth culture (Bowes et al., 2015).

A second explanation is that self-harm may lead to alternative subculture affiliation, in that individuals choose to identify with the subculture based on their own experiences (Young, Sweeting, & West, 2006; Arnett, 1996). Young people who are vulnerable to low mood and self-harm may be attracted to groups with peers of similar difficulties who validate their experiences through music lyrics (Arnett, 1991; Bowes et al., 2015; Martin, Clarke, & Pearce, 1993; Young et al., 2006; Young et al., 2014). This theory implies that a vulnerability to self-harm and suicide may be the cause of alternative subculture affiliation rather than a consequence. This vulnerability may have been created through earlier exposure to adversity, such as trauma, neglect, isolative environments or bereavements (Arnett, 1996; Healthcare Quality Improvement Partnership; HQIP, 2016).

A final explanation is that alternative subculture affiliation leads to self-harm due to the behaviour being modelled by peers or icons, for example music groups or bands (Young et al., 2014). The media may have played a role in reinforcing this message, but it has also influenced the public perception of alternative subcultures and the links with risk behaviours. For example, there has been widespread public concern about the possibility that song lyrics may promote self-harm and suicide (Stack, Gundlach, & Reeves, 1994) which has led to efforts from parents to promote the use of warning labels on certain types of music (Stack et al., 1994). Furthermore, parents bereaved by suicide have accused Heavy Metal groups of promoting suicidal behaviours and have proceeded to sue musicians (Martin et al., 1993). Modelling of peers and advertisement from the media may contribute to the risk behaviours becoming a normative component of such cultures leading to 'social contagion', increasing self-harm within those who identify with such groups (Dishion & Tipsord, 2011; Young et al., 2006).

There is a cited idea in both research and the media (Bazian, 2015; Cooper, 2015; Curtis & Carvel, 2005) that there is a link between self-harm, suicide and identification with

an alternative subculture or having a preference for such music. However, the literature has not yet been systematically reviewed. This systematic review aims to clarify the relationship between both people who self-identify as being a part of an alternative subculture and/or those who have a preference for an alternative style of music (e.g. Heavy Metal, Goth) and the occurrence of self-harm and/or suicide. Whilst alternative subculture affiliation may extend beyond musical preferences, music preference remains a key indicator of affiliation.

Method

Search Strategy

A protocol for this review was pre-registered with PROSPERO (CRD42016045402). The inclusion of qualitative research reflects a departure from protocol, but was made to allow a better exploration of mechanisms linking subculture affiliation and self-harm. The electronic databases PsycINFO, Scopus, MEDLINE and Web of Science were searched from the earliest date to December 2017 using the following key subject terms, identified from scoping searches: “self injur*” OR “self-injurious behav*” OR “self harm*” OR self-harm OR NSSI OR DSH OR “self mutil*” OR “non-suicidal self-injury*” OR “non-suicidal self-injury disorder” OR “self-cut*” OR “self destruct*” OR suicide* AND goth* OR emo OR punk OR subculture* OR “adolescent identity” OR metal* OR “heavy metal*” OR “alternative adolescent subculture” OR “alternative culture” OR “youth subculture*” OR “social group”. Additional controlled vocabulary searches were completed for MEDLINE (self-mutilation OR suicide OR self-injurious behaviour OR suicidal ideation OR attempted suicide OR poisoning AND social identification) and PsycINFO (self-injurious behaviour OR self-mutilation OR suicide OR attempted suicide OR self-destructive behaviour AND social groups OR social identity) and the E-thesis online service (ETHOS) was searched using general key terms (self-harm OR suicide) to capture any additional unpublished theses.

The reference lists of included papers were manually searched for any additional papers of relevance and corresponding authors of included papers contacted to enquire about any unpublished potentially eligible research.

Screening of data was completed in parallel by two reviewers using the inclusion and exclusion criteria. A third reviewer clarified any uncertainties. This procedure consisted of firstly screening the titles and abstracts, followed by the full texts.

Inclusion and Exclusion Criteria

We included both quantitative and qualitative research studies but applied different inclusion and exclusion criteria. For quantitative research, studies were included that a) presented new research data, b) included a measure of affiliation to an alternative subculture or of preference for alternative music genres, c) measured self-harm or suicide, and d) were English-language. For qualitative research, studies were included that a) presented new research data, b) sourced qualitative data (e.g. via interview or through secondary sources such as internet forum posts) pertaining to affiliation to an alternative subculture or of preference for alternative music genres, c) sourced qualitative data pertaining to self-harm or suicide, and d) were English-language. Case studies were excluded as our interest was on sample-level themes and trends. Alternative subculture affiliation was defined as:

A strong sense of collective identity and a set of group-specific values and tastes. This typically centres on distinctive style, clothing, make up, body art and music preference. Those involved usually stand out to both fellow participants and to those outside the group. Groups typically under the ‘alternative’ umbrella include Goths, Emos, Punks and Metallers (Greater Manchester Police, 2013, para. 2).

Adding to this definition, the current review included those who had expressed a preference for ‘alternative’ music, broadly defined as genres that have moved away from or define themselves as distinct from ‘mainstream’ musical genres, including Metal, Punk, Goth or

genres otherwise referred to as alternative. Studies where specific numbers or details of alternative subculture affiliation were not described were excluded.

Due to potential difficulties with synthesising evidence from qualitative and quantitative approaches (Dixon-Woods, Agarwal, Jones, Young, & Sutton, 2005) we provide a narrative synthesis of these two bodies of research separately. We then contrast and compare the common themes and generate over-arching conclusions within the Discussion.

Risk of Bias

Quantitative studies that were selected for inclusion were assessed for risk of bias, independently by two raters, using the Agency for Healthcare Research and Quality (AHRQ) assessment tool that has been used for observational research (Williams et al., 2010). This tool was designed to be adapted to the specific context of the research being reviewed, and has previously been used in systematic reviews of self-harm research (Taylor, Hutton, & Wood, 2014). The tool covers nine domains representing different risks of bias. Each domain is graded as ‘yes’, ‘no’, ‘partial’ or ‘cannot tell’. For qualitative studies, quality of the research (the term “bias” does not necessarily apply to qualitative research and so has not been used here) was assessed by applying the Medical Journal of Australia guidelines for quality assessment in qualitative research (Kitto, Chesters & Grbich, 2008). Ratings against the six domains outlined in these guidelines were made independently by two raters. As with quantitative studies, each domain is graded as ‘yes’, ‘no’, ‘partial’ or ‘cannot tell’

Results

Quantitative Studies

Summary of Included Papers

Ten papers were selected for inclusion; nine from published journals and one an unpublished thesis (O’Connor, 2015). A summary of the study characteristics is presented in Table 1. Seven of the studies were cross-sectional, two longitudinal, and one a cross-sectional

state-level comparison. Most of the studies focused on adolescents and young adults from the ages of 14 – 24 years, with one exception which included an additional older age group of 24 – 35 years (Stack et al., 1994). Six of the samples were from student populations. Eight of the ten studies focused on self-harm, one considered both self-harm and NSSI (Young et al., 2014) and one study focused on completed suicide (Stack et al., 1994).

Risk of Bias

The outcomes of the risk of bias assessment, measured by an adapted AHRQ, are presented in Table 2. Recurrent methodological problems included an absence of power calculations to justify sample size; little information or acknowledgement of the handling of missing data; lack of detail concerning sample characteristics, recruitment methodology and the use of student samples. Lack of sample size justification may mean results are under powered. This is less of a concern for seven of the studies which had large sample sizes ($n = 241$ to 3694), though the remaining three may be at risk of type II errors, failing to detect actual effects (Burge et al., 2010; Lester & Whipple, 1996; Scheel & Westefeld, 1999). Missing data could create bias depending on how it was handled and the nature of it, particularly if it was missing not at random (MNAR; Sterne et al., 2009). For example, in this context, people with greater self-harm may have been less likely to provide data on self-harm. Six studies used student samples either from secondary schools or universities where opportunistic sampling (e.g. completing the study in regular classes or a single school) may have created further biases (Burge et al., 2010; Lacourse et al., 2001; Lester & Whipple, 1996; Martin et al., 1993; Scheel & Westefeld, 1999; Young et al., 2014).

Five studies did not use full validated tools to measure the outcome of self-harm. In many cases, this took the form of using a single question adapted from a longer measure, which may lack content validity and reliability (Hom, Joiner, Bernert, & Joiner, 2016).

Similarly, six studies used partially validated or non-validated methods to measure subculture affiliation. Six of the ten studies attempted to control for confounding variables in the analysis, with only four of these adequately controlling for both demographic variables and potential predictors or correlates of self-harm. It is important to control for such confounding variables to obtain accurate parameter estimates of the association between alternative subculture affiliation and self-harm.

Alternative Subculture Affiliation

Of the four studies that focused on alternative subculture affiliation, all studies found a significant association between alternative subculture affiliation and self-harm (See Table 1). Two studies were longitudinal in design. However, Young and colleagues (2006) employed a cross-sectional analysis (i.e. did not focus on the change in variables over time). Therefore, we can only infer a direction of effect from one study (Bowes et al., 2015). This study found that participants who affiliated heavily with an alternative subculture identity had a greater risk of self-harm (OR = 5.14; 3.58, 7.36) across a three-year time period (15-18 years; Bowes et al., 2015). An increase in the odds of self-harm of 1.52 (1.42, 1.63) for each unit increase in the 5-point affiliation scale, reduced to 1.33 (1.19, 1.48) when adjusting for confounders to include previous depression and self-harm, gender, early risks factors and victimisation.

Two cross-sectional studies (Young et al., 2006; Young et al., 2014) found that those who at least moderately self-identified with an alternative subculture (Goth, Emo, Punk, Mosher) had more than three times the odds of endorsing self-harm (OR = 3.49 – 14.16), NSSI (OR = 3.56 – 3.92) and suicidal thoughts (OR = 3.41), and around six times the odds of having attempted suicide (OR = 5.96). Moreover, the affiliation with ‘Goth’ culture specifically had a stronger association with self-harm (OR = 16.35, CI = 5.06 – 52.91), and

was the only subculture that remained a significant predictor of self-harm when other subcultures were adjusted for. However, the large confidence intervals observed possibly reflect the small sample size ($n = 15$; Young et al., 2006), affecting the precision of the results. Effect sizes remained similar or were larger when confounding variables were adjusted for (e.g. substance use, socioeconomic status, gender, depression). The cross-sectional nature of the analyses of these studies limits the ability to make inferences regarding causality or the direction of effect.

Another cross-sectional study (O'Connor, 2015) found Emo participants reported more self-harm (including suicidal ideation) than the Goth participants ($d = 1.15 - 1.44$), however, a different study found Goth and Emo alternative groups loaded onto a single factor (Young et al., 2014). Out of the four studies discussed, three used non-validated items from larger tools to measure self-harm, but identified similar relationships to the one study that did use validated scales (Young et al., 2014).

Music Preference

There were small, positive associations between a preference for Heavy Metal music and increased self-harm (five studies); namely suicidal ideation ($r = .24$; Burge et al., 2010), past suicidal ideation ($r = .21$; Lester & Whipple, 1996) and suicide risk to include attempted suicide and suicidal ideation ($r = .13 - .26$; Lacourse et al., 2001). Furthermore, higher percentages of Heavy Metal fans (31-74%) reported suicidal thoughts in comparison to non-fans (35% vs. 14%; Martin et al., 1993; Scheel & Westefeld, 1999).

In one study, the association of music preference and self-harm disappeared ($B = 0.10-0.14$) when adjusting for a range of confounders including self-estrangement/powerlessness, father negligence, normlessness, and substance use (Lacourse et al., 2001) but as these factors were not explored in other studies, conclusions cannot be made.

Stack and colleagues (1994) compared geographic regions (US states) and reported a significant positive association ($r = .56$) between a preference for Heavy Metal music and completed suicide in young people (aged 15- 24 years), which remained evident, though smaller, when confounding variables were controlled for (e.g. divorce, immigration, social economic status, religion and ethnicity; $B = .26$). Importantly, the design of this study means inferences regarding the association of music preference and self-harm for individuals are not possible, and could reflect the ecological fallacy (Winzar, 2015). The assessment of musical preference (magazine subscription) is also a proxy and it is unclear how well this mirrors musical preference when assessed directly.

Qualitative Studies

Summary of Included Papers & Quality Assessment

Two qualitative papers were identified (See Table 3). One analysed social media postings for two Emo interest groups, and so provided little information concerning sample characteristics (Zdanow & Wright, 2012). The other involved interviews with Emo adolescents alongside an analysis of web-forums (Trnka, Kuska, Balcar & Tavel, 2017).

Both studies lacked a justification of the qualitative approach taken (see Table 4), raising uncertainty about whether alternative approaches to the data would have been more suitable. Procedural rigor was also a problem, with a lack of transparency relating to methodological decisions apparent to some extent in both studies. As a result the suitability of the samples to answer the questions posed by the research was limited. For example, it was not always clear how groups had been selected or how Emo affiliation was determined. Both studies also did not engage with issues of reflexivity, which might have influenced study design or implementation. In both studies the use of data from internet forums or social media is potentially problematic. Such posts are made with a primary social and communal

function, and it is challenging to separate the function of these postings from their other possible meanings. These issues mean that results from these two studies should be viewed with caution.

Alternative Subculture Affiliation

Both studies reported common themes around suicide and self-harm being accepted and normalised, presented as understandable responses to life difficulties and valid solutions. At the extreme, this included positive reinforcement and praise relating to reported acts of self-harm. Consistent with wider literature (Taylor et al., 2017), the idea that self-harm can be functional and provide a means of coping with distressing experiences was noted. The data also suggested possible benefits of subculture affiliation, including the sense of acceptance and belonging that can come from being part of a subculture. This mirrors findings from the wider literature on alternative subcultures (Hines & McFerran, 2014; Munsell, 2011). Data suggested that self-harm was at times seen as a part of the Emo subculture but this did not seem as strong a theme, more apparent in Trnka and colleagues (2017) than Zdanow and Wright (2012). Moreover, Trnka and colleagues suggestion of a link between Emo subculture and self-harm relied heavily on their own interpretation of having seen young people with visible scars, and images of injuries online, rather than through direct interview data. It is also not clear to what extent the views identified in these studies reflect the perceptions of young people more generally, and so it is difficult to link these themes specifically to a certain subculture.

Discussion

The aim of the review was to investigate the relationship that self-harm and suicide has with alternative subculture affiliation, including music preference as a proxy indicator of subculture affiliation. Four quantitative papers identified direct evidence of substantive

positive association between alternative subculture affiliation and self-harm. Moreover, one of these studies employed a longitudinal design providing evidence that alternative subculture affiliation may lead to or contribute to risk of self-harm, as opposed to being a consequence or epiphenomena of self-harm. More indirect evidence of this association between alternative subculture affiliation and self-harm came from the six studies that were concerned with musical preference. Small positive associations were found across studies for a preference for Heavy Metal music and self-harm, and one study found an association with completed suicide. Two qualitative papers raise the possibility that normalisation and acceptance of self-harm and suicide within alternative subcultures may reflect one mechanism increasing risk in these populations. However, it is unclear whether these putative mechanisms are something specific to alternative subcultures and so conclusions here should remain cautious.

The findings across several studies that participants who identified with alternative subcultures (through self-identification or music preference) also had experiences of adversity, including bullying or victimisation, difficult family relationships and prior emotional and/or behaviour difficulties (Bowes et al., 2015; Lacourse et al., 2001; Martin et al., 1993), provides some support for the suggestion that they are a group that may have pre-existing vulnerabilities to self-harm (Young et al., 2014). However, despite this potential link, several studies ($k = 3$) found that the relationship between alternative affiliation and self-harm continued to exist after these confounding variables were controlled for (Bowes et al., 2015; Young et al., 2006; Young et al., 2014). Furthermore, the single longitudinal analysis suggested that subculture affiliation is associated with a subsequent increase in self-harm risk. These results appear to work against the hypothesis that the association between alternative subculture affiliation and self-harm results solely from a shared vulnerability. This evidence is preliminary though, and further research, especially longitudinal studies, are needed before firmer conclusions can be drawn.

Multiple mediating mechanisms may account for an association between alternative subculture affiliation and self-harm. Self-harm may be a way of coping with the ‘minority stress’ that such groups may experience (e.g. victimisation, stigma, hate crime), or a mechanism that is more inherent to the group affiliation itself, such as modelling, normalisation or even positive reinforcement of self-harm (Young et al., 2014). The latter mechanism was suggested by the qualitative studies, but data is currently lacking to suggest this modelling or normalisation is particularly pronounced in alternative subcultures. It has also been suggested that the morbid aesthetic associated with certain alternative subcultures (e.g. Emo, Goth), results in increased exposure to images and themes linked to self-harm and suicide (Trnka et al., 2017), but again empirical support is lacking. Moreover, images relating to injury, self-harm and suicide are prolific in popular culture outside of alternative subcultures (e.g. controversial television series “13 reasons why”), and the morbid and subversive imagery found within some alternative subcultures such as Goth, can also be balanced with a sense of camp and self-irony (e.g. Mueller, 2008; van Elferen, 2012). These mediating mechanisms clearly require further investigation. It should also be noted that there is evidence of the positive effects of subculture affiliation, in terms of a sense of belonging and community (Hines & McFerran, 2014; Munsell, 2011; Young et al., 2014). Well-designed longitudinal qualitative studies may be valuable here in examining possible mechanisms.

The number of participants who identified as ‘alternative’ or who reported self-harm was small in many studies (e.g. less than 10% of overall sample), which may have limited power and reliability of effect estimates. Participants were predominantly young people from western societies (e.g. only one study included an older age group) and so conclusions cannot currently be generalized beyond this context. Alternative subculture affiliation is a culture-bound construct, and different groups will emerge dependent on culture. However, there is

some research to suggest that alternative subcultures do exist in non-westernised countries (Bin Quader, & Redden, 2015; Ma, 2002; Mulej, 2011; Rene & Airi-Alina, 2011). Related to this is the possibility that the same subcultures differ across countries (e.g. UK and US Goths or fans of Metal). More cross-cultural studies would help identify such differences

Recruitment procedures, inclusion criteria and/or definitions of what constitutes an “adolescent” were not clearly stated in seven studies which may impair comparability of results where different definitions were used.

Studies had an over-reliance on self-report measures. These may be beneficial in assessing a taboo subject like self-harm, encouraging more honest responses (Thornberry & Krohn, 2000). Nonetheless, relying on self-report also creates a risk of shared method bias that may have inflated associations. Measures of subculture affiliation and music preference rarely had established psychometric properties, though they typically had good face validity. Poor psychometric properties would affect the validity of findings, for example, if measures do not represent important subcultures. However, a challenge to developing scales in this area is the shifting nature of youth culture. Several studies ($k = 5$) used single or few item measures of self-harm which may lack content validity and carry a greater risk of error (false positive and false negatives) in identifying self-harm. Future research would benefit from more comprehensive assessment of subculture affiliation and self-harm using validated measures and a variety of assessment mediums (e.g. self-report, interview, etc.). The qualitative studies generally lacked transparency and discussion regarding important aspects of the design and analysis (e.g. sampling strategy, choice of analytic method, reflexivity) and at times presented themes that did not seem well supported by the data.

In this review, music preference was included as a proxy to measure the alternative concept, but these two constructs are not directly comparable and had to be explored separately. Moreover, the definition of ‘alternative’ varied between studies, which limits

comparability further. In the current review, it was noted that although alternative subcultures were the population of interest, the papers that were explored under this category largely focused on Goth subculture. A final limitation of the review is that it was limited to papers that were available in English language.

The review supports the suggestion that those who identify as belonging to an alternative subculture are at a higher risk of self-harm and suicidal behaviour. Moreover, there is preliminary evidence that alternative affiliation predicts self-harm over time, and that this effect holds whilst adjusting for a number of likely confounders. Nonetheless, while a variety of plausible mediating mechanisms exist, it is not yet clear what it is about alternative subculture affiliation (or alternative music preference) that could contribute to the risk of self-harm. This research requires interpretation within the wider context of public concern around alternative subcultures and their impact on the mental health of young people. This public concern has at times, unhelpfully, demonised alternative subcultures and music as a cause of problems including self-harm (Hjelm, Kahn-Harris & LeVine, 2011; Varas-Díaz, Rivera-Segarra, Medina, Mendoza, González-Sepúlveda, 2015). There is currently not adequate evidence to draw conclusions that these alternative subcultures themselves are in any way harmful. Instead a justifiable stance is to view individuals belonging to such subcultures as a group at elevated risk of self-harm, whom we may need to better understand and support

There are various possible avenues for interventions with these groups. Increasing the awareness of the victimisation of alternative subcultures through campaigns in order to reduce stigma and empower subcultures may impact on outcomes for individuals (Bowes et al., 2015; World Health Organisation; WHO, 2014). For example, the Sophie Lancaster Foundation has been set up for the purpose of reducing the victimisation of such groups (Young et al., 2014). Another route for intervention would be training health, education and social services staff about the nature and function of both subculture identities and self-harm

and suicide, allowing professionals to identify those at risk of self-harm, suicide and contagion and intervene early (Department of Health; DOH, 2012; Dishion & Tipsord, 2011; Young et al., 2014). Introducing preventative programmes to these services could aim to reduce risk behaviours through providing psychoeducation about mental health and help-seeking (Scheel & Westefeld, 1999; Young et al, 2014); engaging families in support programmes/interventions (Fortune, Cottrell, & Fife, 2016) or running groups on problem solving, self-efficacy and skills training (e.g. emotional regulation; Booth, Keogh, Doyle, & Owens, 2014; Sambrook, Abba, & Chadwick, 2007). Working directly with alternative youths might involve developing interventions that build on existing identities, for example being creative in approach, potentially involving music in interventions (Lacourse et al., 2001; Young et al., 2014). This may aid engagement, open up communication and avoid stigma. These findings have clinical implications for services who need to respond to the varied needs of such groups. Failure to do so could result in lack of recognition of mental health and risk behaviours (Cooper et al., 2010).

References

- Achenbach, T. & Edelbrock, C. (1987). *Manual for the Youth Self-Report and Profile*. Burlington, VT: University of Vermont Department of Psychiatry.
- Al-Sharifi, A., Krynicki, C., & Upthegrove, R. (2015). Self-harm and ethnicity: A systematic review. *International Journal of Social Psychiatry*, 61(6), 600-612.
doi:10.1177/0020764015573085
- Arnett, J. (1991). Adolescents and heavy metal music: From the mouths of the metalheads. *Youth and Society*, 27, 76-98. doi:10.1177/0044118X91023001004
- Arnett, J. (1996). *Metalheads: Heavy Metal Music and Adolescent Alienation*. Indiana: Westview Press, Boulder, CO.
- Auerbach, R. P. & Abela, J. R. Z. (2006). *The reliability and validity of the Risky Behavior Questionnaire for Adolescents*. Unpublished manuscript, Department of Psychology, McGill University, Montreal, Canada.
- Baldwin, S. & Griffiths, P. (2009). Do specialist community public health nurses assess risk factors for depression, suicide, and self-harm among South Asian mothers living in London? *Public Health Nursing*, 26, 277–289. doi:10.1111/j.15251446.2009.00780.x
- Bazian. (2015, August 28). Goth teens 'at increased risk of depression and self-harm'. (Online news article). Retrieved from <http://www.nhs.uk/news/2015/08August/Pages/Goth-teens-at-increased-risk-of-depression-and-self-harm.aspx>
- Bhui, K., McKenzie, K., & Rasul, F. (2007). Rates, risk factors and methods of self-harm among minority ethnic groups in the UK: A systematic review. *Biomed Central Public Health*, 7(1), 336. doi:10.1186/1471-2458-7-336

- Bin Quader, S., & Redden, G. (2015). Approaching the underground: The production of alternatives in the Bangladeshi metal scene. *Cultural Studies*, 29(3), 401-424.
doi:10.1080/09502386.2014.937945
- Booth, R., Keogh, K., Doyle, J., & Owens, T. (2014). Living through distress: A skills training group for reducing deliberate self-harm. *Behavioural and Cognitive Psychotherapy*, 42(2), 156-165. doi:10.1017/S1352465812001002
- Bowes, L., Carnegie, R., Pearson, R., Mars, B., Biddle, L., Maughan, B., ... Heron, J. (2015). Risk of depression and self-harm in teenagers identifying with Goth subculture: A longitudinal cohort study. *The Lancet Psychiatry*, 2(9), 793-800.
doi:10.1016/S2215-0366(15)00164-9
- Brent, D. A., McMakin, D. L., Kennard, B. D., Goldstein, T. R., Mayes, T. L., & Douaihy, A. B. (2013). Protecting adolescents from self-harm: A critical review of intervention studies. *Journal of the American Academy of Child and Adolescent Psychiatry*, 52, 1260-1271. doi:10.1016/j.jaac.2013.09.009
- Burge, M., Goldblat, C., & Lester, D. (2010). Music preferences and suicidality: A comment on Stack. *Death Studies*, 26(6), 501-504. doi:10.1080/074811802760139021
- Chan, M., Bhatti, H., Meader, N., Stockton, S., Kendall, T., Evans, J., ... Kapur, N. (2016). Predicting suicide following self-harm: Systematic review of risk factors and risk scales. *British Journal of Psychiatry*, 209(4), 277-283.
doi:10.1192/bjp.bp.115.170050
- Clements, C., Turnbull, P., Hawton, K., Geulayov, G., Waters, K., Ness, J., ... & Kapur, N. (2016). Rates of self-harm presenting to general hospitals: a comparison of data from the Multicentre Study of Self-Harm in England and Hospital Episode Statistics. *BMJ open*, 6(2), e009749. <http://dx.doi.org/10.1136/bmjopen-2015-009749>

- Cooper, C. (2015, August, 27). Goths at risk of depression or self-harming research says. (Online news article). Retrieved from <http://www.independent.co.uk/life-style/health-and-families/health-news/goths-may-be-more-likely-to-suffer-from-depression-or-to-self-harm-research-says-10475180.html>
- Cooper, J., Murphy, E., Webb, R., Hawton, K., Bergen, H., Waters, K., & Kapur, N. (2010). Ethnic differences in self-harm, rates, characteristics and service provision: Three-city cohort study. *British Journal of Psychiatry*, *197*(3), 212–218. doi:10.1192/bjp.bp.109.072637
- Curtis, P. & Carvel, J. (2006, April, 14). Teen goths more prone to suicide, study shows. (Online news article). Retrieved from <https://www.theguardian.com/society/2006/apr/14/socialcare.uknews>
- Department of Health (2012). *Department of Health: The NHS Mandate*. Retrieved from <http://www.gov.uk/government/publications/the-nhs-mandate>
- Dishion, T. J., & Tipsord, J. M. (2011). Peer contagion in child and adolescent social and emotional development. *Annual Review of Psychology*, *62*, 189-214. doi:10.1146/annurev.psych.093008.100412.
- Dixon-Woods, M., Agarwal, S., Jones, D., Young, B., & Sutton, A. (2005). Synthesising qualitative and quantitative evidence: A review of possible methods. *Journal of Health Services Research & Policy*, *10*(1), 45-53. doi:10.1177/135581960501000110
- Eaton, W. W., Smith, C., Ybarra, M., Muntaner, C., & Tien, A. (2004). Center for Epidemiologic Studies Depression Scale: Review and revision (CESD and CESD-R). In M.E. Maruish (Ed.). *The use of psychological testing for treatment planning and outcomes assessment* (3rd ed., Vol. 3, pp. 363–377). Mahwah, NJ: Lawrence Erlbaum.

- Fortune, S., Cottrell, D., & Fife, S. (2016). Family factors associated with adolescent self-harm: A narrative review. *Journal of Family Therapy*, 38(2), 226-256.
doi:10.1111/1467-6427.12119
- Garland, J. & Hodkinson, P. (2014). 'F**king freak! What the hell do you think you look like?': Experiences of targeted victimization among Goths and developing notions of hate crime. *British Journal of Criminology*, 54(4), 613-631. doi:10.1093/bjc/azu018
- Goodman, A., Heiervang, E., Collishaw, S., & Goodman, R. (2011). The 'DAWBA bands' as an ordered-categorical measure of child mental health: Description and validation in British and Norwegian samples. *Social Psychiatry and Psychiatric Epidemiology*, 46(6), 521-532. doi:10.1007/s00127-010-0219-x
- Greater Manchester Police (2013, April 5). GMP begins to record alternative sub-culture hate crimes. Retrieved from <http://www.gmp.police.uk/Content/WebsitePages/BCE5CBFBA182F06380257B43002A81E5?OpenDocument>.
- Gutierrez, P. M., Osman, A., Barrios, F. X., & Kopper, B. A. (2001). Development and initial validation of the Self-Harm Behavior Questionnaire. *Journal of Personality Assessment*, 77(3), 475-490.
doi:10.1207/S15327752JPA7703_08
- Hawton, K., Bergen, H., Casey, D., Simkin, S., Palmer, B., Cooper, J., ... Owens, D. (2007). Self-harm in England: A tale of three cities. *Social Psychiatry and Psychiatric Epidemiology*, 42, 513-21. doi:10.1007/s00127-007-0199-7
- Hawton, K. & Harriss, L. (2007). Deliberate self-harm in young people: Characteristics and subsequent mortality in a 20-year cohort of patients presenting to hospital. *Journal of Clinical Psychiatry*, 68, 1574-1583. doi:10.4088/JCP.v68n1017

- Hawton, K., Rodham, K. & Evans, E. (2006). *By their Own Young Hand: Deliberate Self-Harm and Suicidal Ideas in Adolescents*. Jessica Kingsley Publishers, London.
- Hawton, K., Saunders, K.E.A. & O'Connor, R.C. (2012). Self-harm and suicide in adolescents. *Lancet*, 379, 2373-2382. doi:10.1016/S0140-6736(12)60322-5
- Healthcare Quality Improvement Partnership (2016). *Suicide by Children and Young People in England. National Confidential Inquiry into Suicide and Homicide by People with Mental Illness (NCISH)*. Retrieved from University of Manchester: http://research.bmh.manchester.ac.uk/cmhs/research/centreforsuicideprevention/nci/reports/cyp_report.pdf
- Hjelm, T., Kahn-Harris, K., & LeVine, M. (2011). Heavy metal as controversy and counterculture. *Popular Music History*, 6, 5-18. doi: 10.1558/pomh.vri1/2.5
- Hines, M., & McFerran, K. S. (2014). Metal made me who I am: Seven adult men reflect on their engagement with metal music during adolescence. *International Journal of Community Music*, 7, 205-222. doi: 10.1386/ijcm.7.2.205_1
- Hom, M. A., Joiner Jr., T. E., Bernert, R. A., & Joiner, T. E. (2016). Limitations of a single-item assessment of suicide attempt history: Implications for standardized suicide risk assessment. *Psychological Assessment*, 28(8), 1026-1030. doi:10.1037/pas0000241
- Kehrberg, C. (1997). Self-mutilating behavior. *Journal of Child and Adolescent Psychiatric Nursing*, 10, 35-40. doi:10.1111/j.1744-6171.1997.tb00412.x
- Kitto, S. C., Chesters, J., & Grbich, C. (2008). Quality in qualitative research. *Medical Journal of Australia*, 188, 243-246. Retrieved from <https://www.mja.com.au/journal/2008/188/4/quality-qualitative-research>

- La Greca, A. M., Prinstein, M. J., & Fetter, M. D. (2001). Adolescent peer crowd affiliation: Linkages with health-risk behaviors and close friendships. *Journal of Pediatric Psychology, 26*(3), 131. doi:10.1093/jpepsy/26.3.131
- Lacourse, E., Claes, M., & Villeneuve, M. (2001). Heavy metal music and adolescent suicidal risk. *Journal of Youth and Adolescence, 30*(3), 321-332.
doi:10.1023/A:1010492128537
- Lester, D. & Whipple, M. (1996). Music preference, depression, suicidal preoccupation, and personality: Comment on Stack and Gundlach's papers. *Suicide and Life-Threatening Behavior, 26*(1), 68-70. Retrieved from
<http://search.proquest.com.liverpool.idm.oclc.org/docview/224897087/fulltextPDF/E28AEFBAB534503PQ/9?accountid=12117>
- Lewis, G. (1994). Assessing psychiatric disorder with a human interviewer or a computer. *Journal of Epidemiology & Community Health, 48*(2), 207-210.
doi:10.1136/jech.48.2.207
- Liverpool CAMHS. (2016). *Multi-Agency Self-harm Practice Guidance*. Liverpool: Liverpool Safeguarding Children Board; LSCB. Retrieved from
https://search3.openobjects.com/mediamanager/liverpool/fsd/files/liverpool_self_harm_practice_guidance_october_2016.pdf
- Ma, E. (2002). Emotional energy and sub-cultural politics: Alternative bands in post-1997 Hong Kong. *Inter-Asia Cultural Studies, 3*(2), 187-200.
doi:10.1080/1464937022000000110
- Martin, G., Clarke, M., & Pearce, C. (1993). Adolescent suicide: Music preference as an indicator of vulnerability. *Journal of the American Academy of Child and Adolescent Psychiatry, 32*(3), 530-535. doi:10.1097/00004583-199305000-0000

- Mental Health Foundation (2017). *The truth about self-harm: For young people and their friends and families*. Scotland: Mental Health Foundation. Retrieved from <https://www.mentalhealth.org.uk/sites/default/files/Truth%20about%20self%20harm%20WEB%20FINAL.pdf>
- Mosbach, P. & Leventhal, H. (1988). Peer group identification and smoking: Implications for intervention. *Journal of Abnormal Psychology*, 97(2), 238-245. doi:10.1037/0021-843X.97.2.238
- Mulej, O. (2011). 'We are drowning in red beet, patching up the holes in the iron curtain': The Punk subculture in Ljubljana in the late 1970s and early 1980s. *East Central Europe*, 38(2/3), 373-389. doi:10.1163/187633011X597207
- Mueller, C. A. (2008). *The music of the goth subculture: Postmodernism and aesthetics* (doctoral dissertation). Retrieved from <http://diginole.lib.fsu.edu/islandora/object/fsu:180435/datastream/PDF/view>
- Munsell, E.P. (2011). *Punk rock as family and community: An exploration of the positive aspects of membership in a music-based subculture* (doctoral dissertation). retrieved from libres.uncg.edu/ir/uncc/f/PalamaroMunsell_uncg_0694D_10265.pdf
- National Institute for Clinical Excellence (2013). *Self-harm*. London: NICE.
- Nixon, M. K., Cloutier, P.F., & Aggarwal, S. (2002). Affect regulation and addictive aspects of repetitive self-injury in hospitalized adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41(11), 1333–1341. doi:10.1097/00004583-200211000-00015
- Nock, M. K. (2010). Self-injury. *Annual Review of Clinical Psychology*, 6, 339–363. doi:10.1146/annurev.clinpsy.121208.131258

- Nock, M. K., Borges, G., Bromet, E., Cha, C., Kessler, R., & Lee, S. (2008). Suicide and suicidal behavior. *Epidemiologic Reviews*, *30*(1), 133-154.
doi:10.1093/epirev/mxn002
- Nock, M. K. & Prinstein, M. J. (2004). A functional approach to the assessment of self-mutilative behavior. *Journal of Consulting and Clinical Psychology*, *72*(5), 885-890.
doi:10.1037/0022-006X.72.5.885
- O'Connor, L. (2015). *Spectacular Youth: A Comparative Analysis of the Goth and Emo Subcultures on Key Measures of Psychological Well-Being*. (Doctoral dissertation). Retrieved from <http://search.proquest.com/docview/1628966998>
- Ougrin, D., Tranah, T., Stahl, D., Moran, P., & Asarnow, J. R. (2015). Therapeutic interventions for suicide attempts and self-harm in adolescents: Systematic review and meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry*, *54*, 97-107. doi:10.1016/j.jaac.2014.10.009
- Owens, P. L., Barrett, M. L., Gibson, T. B., Andrews, R. M., Weinick, R. M., & Mutter, R. L. (2010). Emergency department care in the United States: A profile of national data sources. *Annals of Emergency Medicine*, *56*(2), 150-165.
doi:10.1016/j.annemergmed.2009.11.022
- Rene, M. & Airi-Alina, A. (2011). Making distinctions on autonomous cultural field: The case of small-scale alternative music festival organisers in Estonia. *Studies of Transition States and Societies*, *3*(2), 69-80. Retrieved from http://www.ssoar.info/ssoar/bitstream/handle/document/36312/ssoar-stss-2011-2-mae_et_al-Making_Distinctions_on_Autonomous_Cultural.pdf?sequence=1
- Reynolds, W. M. (1986). *The Suicide Ideation Questionnaire*. Odessa, FL: Psychological Assessment Resources.

- Rutledge, C. M., Rimer, D., & Scott, M. (2008). Vulnerable Goth teens: The role of schools in this psychosocial high-risk culture. *Journal of School Health, 78*(9), 459–464.
doi:10.1111/j.1746-1561.2008.00331.x
- Sambrook, S., Abba, N., & Chadwick, P. (2007). Evaluation of DBT emotional coping skills groups for people with parasuicidal behaviours. *Behavioural and Cognitive Psychotherapy, 35*(2), 241-244. doi:10.1017/S1352465806003298
- Scheel, K. R. & Westefeld, J. S. (1999). Heavy metal music and adolescent suicidality: An empirical investigation. *Adolescence, 34*(134), 253.
- Stack, S., Gundlach, J., & Reeves, J. (1994). The heavy metal subculture and suicide. *Suicide and Life-Threatening Behavior, 24*(1), 15-23.
doi:10.1111/j.1943-278X.1994.tb00659.x
- Sterne, J., White, I., Carlin, J., Spratt, M., Royston, P., Kenward, M., ... Carpenter, J. (2009). Multiple imputation for missing data in epidemiological and clinical research: Potential and pitfalls. *British Medical Journal, 339*. doi:10.1136/bmj.b2393
- Taylor, P., Hutton, P., & Wood, L. (2014). Are people at risk of psychosis also at risk of suicide and self-harm? A systematic review and meta-analysis. *Psychological Medicine, 45*, 911-926. doi:10.1017/S0033291714002074
- Taylor, P. J., Jomar, K., Dhingra, K., Forrester, R., Shahmalak, U., & Dickson, J.M. (2017). A meta-analysis of the prevalence of different functions of non-suicidal self-injury. *Journal of Affective Disorders, 227*, 759-769. doi: 10.1016/j.jad.2017.11.073
- Thornberry, T. P. & Krohn, M. D. (2000). The self-report method for measuring delinquency and crime. *Measurement and Analysis of Crime and Justice, 4*, 33-83.

- Tousignant, M., Hamel, S., & Bastien, M. F. (1988). [Family structure, parent-child relationships and suicidal behavior in high-school.]. *Sante Mentale Au Quebec*, 13(2), 79-93.
- Trnka, R. Kuška, M., Balcar, K., & Tavel, P. (2017). Understanding death, suicide and self-injury among adherents of the emo youth subculture: A qualitative study. *Death Studies*, 7, 1-9. doi: 10.1080/07481187.2017.1340066
- U.S. Department of Health and Human Services (HHS) (2012). *National strategy for suicide prevention: Goals and objectives for action*. Washington, DC: HHS, Office of the Surgeon General and National Action Alliance for Suicide Prevention.
- U.S. Bureau of the Census. (1991a). *State Population and Household Estimates, with Age, Sex, and Components of Change*. Current Population Reports (Series P-25, No. 1049). Washington, DC: U.S. Government Printing Office.
- U.S. National Center for Health Statistics. (1988-1991). *Mortality Detail Files Codebook*. Ann Arbor: ICPSR.
- Vaughn, M. G., Salas-Wright, C. P., DeLisi, M., & Larson, M. (2015). Deliberate self-harm and the nexus of violence, victimization, and mental health problems in the United States. *Psychiatry Research*, 225, 588-595. doi:10.1016/j.psychres.2014.11.041.
- Van Elferen, I.(2012). *Gothic music: The sounds of the uncanny*. Cardiff: University of Wales Press
- Varas-Díaz, N., Rivera-Segarra, E., Medina, C. L. R., Mendoza, S., & González-Sepúlveda, O. (2015). Predictors of communal formation in a small heavy metal scene: Puerto Rico as a case study. *Metal Music Studies*, 1, 87-103. doi: 10.1386/mms.1.1.87_1
- West, P., Sweeting, H., Der, G., Barton, J., & Lucas, C. (2003). Voice-DISC identified DSM-IV disorders among 15-year-olds in the west of Scotland. *Journal of the American*

Academy of Child and Adolescent Psychiatry, 42, 941-949.

doi:10.1097/01.CHI.0000046907.27264.E4.

Westefeld, J. S., Cardin, D., & Deaton, W. L. (1992). Development of the college student Reasons for Living Inventory. *Suicide and Life-Threatening Behavior*, 22(4), 442-452.

Williams, J. W., Plassman, B. L., Burke, J., Holsinger, T., & Benjamin, S. (2010). *Preventing alzheimer's disease and cognitive decline. Evidence report/technology assessment No. 193. (Prepared by the duke evidence-based practice center under contract No. HHS 290-2007-10066-I)*. Rockville, MD: Agency for Healthcare Research and Quality; 2010.

Winzar, H. (2015). The ecological fallacy: How to spot one and tips on how to use one to your advantage. *Australasian Marketing Journal (AMJ)*, 23, 86-92.

doi:10.1016/j.ausmj.2014.12.002.

World Health Organization. (2017). Depression and other common mental disorders. Global health estimates. Geneva, Switzerland: Author.

(http://www.who.int/mental_health/management/depression/prevalence_global_health_estimates/en/, accessed 8th January, 2018).

Young, R., Sproeber, N., Groschwitz, R., Preiss, M., & Plener, P. (2014). Why alternative teenagers self-harm: Exploring the link between non-suicidal self-injury, attempted suicide and adolescent identity. *Biomed Central Psychiatry*, 14(1), 137.

doi:10.1186/1471-244X-14-137.

Young, R., Sweeting, H. & West, P. (2006). Prevalence of deliberate self-harm and attempted suicide within contemporary Goth youth subculture: Longitudinal cohort study.

British Medical Journal, 332(7549), 1058–1061. doi:10.1136/bmj.38790.495544.7C.

Zdanow, C., & Wright, B. (2012). The representation of self-injury and suicide on emo social networking groups. *African Sociological Review*, 17, 81-101. Retrieved from <https://www.ajol.info/index.php/asr/article/view/87564>

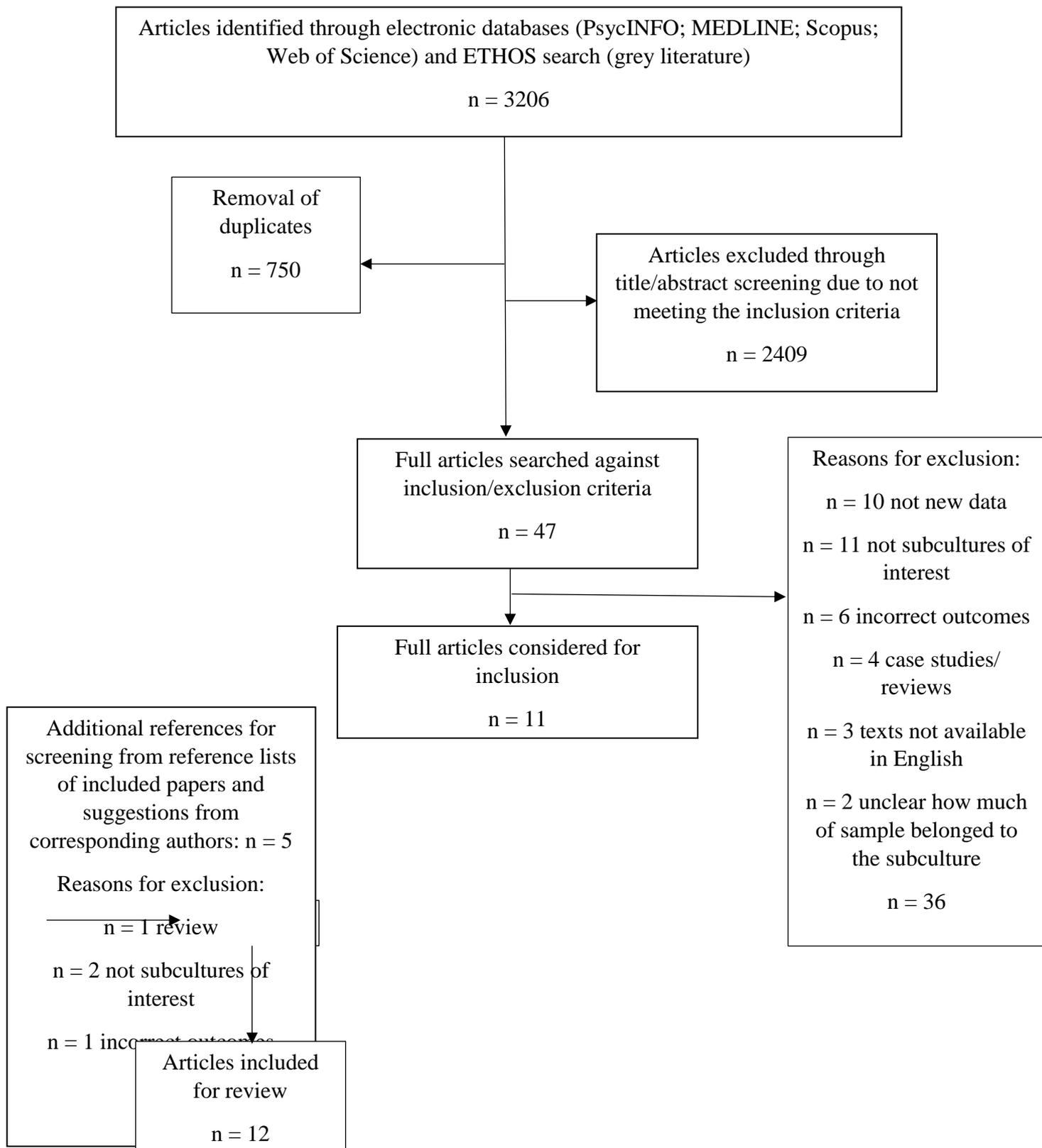


Figure 1. Flow diagram of the selection process

Table 1

Characteristics of Included Quantitative Studies

Author(s), Year, Country	Study Design	Sample Characteristics	Subculture Affiliation/ Music Preference Measure	Self-harm or Suicide Measure	Key Findings
1. Bowes et al. (2015) Avon, UK	Longitudinal	3694 young people (M age = 17.8 years, SD = 0.5)	Adapted Peer Crowd Questionnaire (PCQ; La Greca, Prinstein & Fetter, 2001; Mosbach & Leventhal, 1988)	Development and Wellbeing Assessment (DAWBA; Goodman, Heiervang, Collishaw & Goodman, 2011); Clinical Interview Schedule-Revised (CIS-R; Lewis, 1994)	A significant positive association was found between the extent to which young people identified as 'Goth' at 15 years and self-harm at 18 years old, after adjusting for other potential risk factors (including previous self-harm and depression; <i>OR</i> = 1.33).
2. Burge, Goldblat & Lester (2010) Country not detailed	Cross-sectional	77 secondary school students (N = 41 male; M age = 17.5 years, SD = 0.6)	Non-validated measure of music preference	The Suicidal Ideation Questionnaire (Reynolds, 1986)	There was a significant positive association between listening to Heavy Metal music and increased suicidal ideation ($r = .24$). Heavy Metal music was associated with suicidal ideation in males ($r = .30$) but not females.
3. Lacourse, Claes & Villeneuve (2001) Canada, US	Cross-sectional	275 secondary school students (N = 154 males, M age = 16.22 years)	Non-validated measure of music preference	Suicidal risk scale which classifies adolescents as 'high' or 'low' suicidal risk (Tousignant, Hamel & Bastien, 1988)	There was a small positive association between preference for Heavy Metal music and suicidal ideation and attempts ($r = .13 - .26$). Females who had a preference for Heavy Metal music were at significantly greater risk of suicide ($r = .26$) in comparison

					to males ($r = .13$, not significant), determined by higher reports of serious suicidal ideation and attempted suicide ($r = .26$). However, this finding was diminished when controlling for other risk factors.
4. Lester & Whipple (1996) US	Cross-sectional	93 undergraduates (N = 35 male, M age = 24 years, SD = 6.0)	Non-validated measure of music preference	Non-validated measure of self-harm	A significant positive association was found between having a preference for Heavy Metal music and prior suicidal ideation ($r = -.21$ -.21) but not current suicidal ideation ($r = -.03$ - -.13).
5. Martin, Clarke & Pearce (1993) Australia	Cross-sectional	247 students (N = 138 males, M age = 14.76years).	Non-validated measure of music preference	Achenbach Youth Self Report (YSR; Achenbach & Edelbrock, 1987)	Significant associations were found between a preference for Rock/Metal music and suicidal thoughts and self-harm. Higher percentages of those who had a preference for Heavy Metal music reported suicidal thoughts (31-66%) and deliberate self-harm (20 – 62%) in comparison to those who had other music preferences (15 - 35% suicidal thoughts; 8-14% self-harm).

6. O'Connor (2015) US	Group comparison correlational	241 young adults (N = 79 males, 10 transgender; M age = 19.8 years, SD = 2.31) (Full study) 218 young adults completed the RBQ-A.	Participants self-identified as Goth or Emo using a nominal scale	Risky Behaviour Questionnaire-Adolescents (RBQ-A; Auerbach & Abela, 2006); Center for Epidemiologic Studies Depression Scale-Revised (CESD-R; Eaton, Smith, Ybarra, Muntaner & Tien, 2004).	A significant difference was found between participants who identified with alternative subcultures; affiliation with the Emo subculture reported significantly more self-harm (including suicidal ideation) to the Goth subculture ($d = 1.15 - 1.44$).
7. Scheel & Westefeld (1999) US	Cross-sectional	121 high school students (N = 44 males, M age = 17.2 years).	Non-validated measure of music preference	Suicidal Risk Questionnaire (SRQ; Westefeld, Cardin & Deaton, 1992).	Participants who had a preference for Heavy Metal music had more suicidal thoughts than participants who had other music preferences. Within this group, 74% of females reported occasionally or seriously thinking about suicide in comparison to 35% of females who did not report a preference for Heavy Metal music, and 42% of males who had a preference for Heavy Metal music reported occasionally or seriously thinking about suicide in comparison to 15% of males who did not have this preference.

8. Stack, Gundlach & Reeves (1994) US	Cross-sectional state level comparison	50 states, aged 15-24 and 25-34	Magazine subscriptions to 'metal edge' (a Heavy Metal music magazine)	Suicide data from the annual Mortality Detail Files (U.S National Centre for Health Statistics, 1988); Population data from U.S. Bureau of the Census (1991).	A significant correlation was found between youth suicide and preference for Heavy Metal music ($r = .56$). When covariates were accounted for, a small but significant effect remained ($B = 0.26$), but other factors were more significant (Black ethnicity; $B = -0.41$; Divorced; $B = 0.30$). In the older age group (25 – 34 years), there was no significant effect of a preference for Heavy Metal music and suicide when other factors were controlled for ($B = 0.17$).
9. Young, Sweeting & West (2006) Scotland, UK	Longitudinal	1258 adolescents (N = 640 males, aged 19) Scotland, UK	Non-validated measure of subgroup affiliation	Computerised version of the diagnostic interview schedule for children (Voice-DISC; West, Sweeting, Der, Barton & Lucas, 2003)	A strong positive association was found between affiliation with Goth subculture and self-harm, including attempted suicide ($OR = 16.35$), which remained after confounders were controlled for (e.g. gender, $OR = 1.42$; substance use, $OR = 2.04$; prior depression, $OR = 1.13$). Positive associations were also found between other alternative subcultures (e.g. Punk, Heavy Metal, Mosher) and self-harm ($OR = 3.49$ –

10. Young, Sproeber, Groschwitz, Preiss & Plener (2014) Germany	Cross-sectional	452 students (N = 209 females; aged 14 – 17years).	Non-validated measure of subgroup affiliation	Self-harm Behaviour Questionnaire (SHBQ; Gutierrez, Osman, Barrios & Kopper, 2001); Functional Assessment of Self-injury (FASM; Nock & Prinstein, 2004).	<p>4.42), though the association was much stronger for Goth ($OR = 14.16$) which remained a significant predictor of self-harm when other subcultures were adjusted for.</p> <p>A positive association was found between participants who affiliated with an alternative subculture and NSSI ($OR = 3.6 – 3.9$), suicidal thoughts ($OR = 3.4$) and attempting suicide ($OR = 6.0$) in comparison to their non-alternative peers ($OR = 0.69 – 2.25$). When confounding variables were adjusted for (e.g. substance use, socioeconomic status, gender) this effect was strengthened with the alternative group being more than 4 times the odds to engage in NSSI ($OR = 4.04 – 4.16$) and between almost 4 to 8 times the odds of engaging in other forms of self-harm (e.g. suicidal ideation, $OR = 3.7$ and attempt suicide, $OR = 8.10$).</p>
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Table 2.

Summary Table of Risk of Bias Assessment for Quantitative Studies

Authors	Unbiased recruitment of cohort	Adequate description of cohort	Validated measure for determining self-harm and suicidal behaviour	Validated method for ascertaining belonging to an alternative subculture	Adequate handling of missing data	Analysis controls for confounding variables	Analytic methods appropriate	Sample size calculated	Adequate follow up period (if longitudinal)
Bowes et al. (2015)	Yes	Yes	Partial	Yes	Yes	Yes	Yes	No	Yes
Burge, Goldblat & Lester (2010)	Partial	Partial	Yes	Partial	Cannot tell	Cannot tell	Yes	No	N/A
Lacourse, Claes & Villeneuve (2001)	No	Yes	Yes	Partial	Yes	Yes	Yes	No	N/A
Lester & Whipple (1996)	Partial	Partial	Partial	Partial	Cannot tell	Partial	Yes	No	N/A
Martin, Clarke & Pearce (1993)	Partial	Yes	Partial	No	Cannot tell	No	Yes	No	N/A
O'Connor (2015)	Yes	Yes	Partial	Yes	Yes	No	Yes	Yes	N/A
Scheel & Westefeld (1999)	Partial	Yes	Yes	Yes	Yes	No	Yes	No	N/A

Stack, Gundlach & Reeves (1994)	Yes	No	Yes	No	Cannot tell	Partial	Yes	No	N/A
Young, Sweeting & West (2006)	Yes	Partial	Partial	Partial	Partial	Yes	Yes	No	Yes
Young, Sproeber, Groschwitz, Preiss & Plener (2014)	Partial	Yes	Yes	Yes	No	Yes	Yes	No	N/A

Table 3

Characteristics of Included Qualitative Studies

Author(s), Year, Country	Study Design	Sample Characteristics	Key Themes
Trnka et al (2017) Czech Republic	Interviews; Online forum data	14 Emo adolescents (aged 15 to 19 years); Individuals participating in online emo forums and social media	Suicide as a natural outcome of strong emotion; Suicide as a common solution to life problems; Strange excitement after self-injury; Self-injuries as a mark of affiliation to emo subculture.
Zdanow & Wright (2012) South Africa	Online forum data	Individuals participating in online emo forums and social media. Further participant details not recorded or reported.	Normalisation (of self-harm); Nihilism; Glorification (of self-harm); Us versus them; Acceptance; Reason (alternatives to self-harm); Mockery (by others).

Table 4

Summary Table of Risk of Bias Assessment for Qualitative Studies

Authors	Clarification	Justification	Procedural rigour	Representativeness	Interpretation	Reflexivity and evaluative rigour	Transferability
Trnka et al (2017)	Yes	Partial	Partial	No	Partial	No	Partial
Zdanow & Wright (2012)	Partial	No	No	Partial	Partial	No	Partial

Domains derived from Kitto, Chesters & Grbich, 2008. Clarification = Have the techniques of data collection been clearly documented? Are the forms of data analysis completely transparent? Justification = Why is a qualitative approach the best option to answer this question? Why was the particular qualitative research design chosen? Procedural rigour = Have the techniques of data collection been clearly documented? Are the forms of data analysis completely transparent? Representativeness = What sampling techniques have been used to answer the research question? Do the sampling techniques support conceptual generalisability? Interpretation = Has a more conceptual discussion of the results and linkage to existing theory or new theory been developed to explain the relevance of findings to a targeted audience or discipline? Have any negative cases been included and discussed? Reflexivity and evaluative rigour = Has a clear statement of the effect on the data of the researcher's views and the methods chosen been included? Has an explicit evaluation of the relationship between the researcher and those under research, addressing any ethical issues, been discussed? Transferability = Has a critical evaluation of the application of findings to other similar contexts been made? Has the relevance of these findings to current knowledge, policy, and practice or to current research been discussed?