

# Self-harm and suicidal content online, harmful or helpful? A systematic review of the recent evidence

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## Abstract

**Purpose** – There are calls for greater regulation of online content related to self-harm and suicide, particularly that which is user-generated. However, the online space is a source of support and advice, including an important sharing of experiences. This study aims to explore what it is about such online content, and how people interact with it, that may confer harm or offer benefit.

**Design/methodology/approach** – The authors undertook a systematic review of the published evidence, using customised searches up to February 2021 in seven databases. The authors included empirical research on the internet or online use and self-harm or suicide content that had been indexed since 2015. The authors undertook a theoretically driven narrative synthesis.

**Findings** – From 4,493 unique records, 87 met our inclusion criteria. The literature is rapidly expanding and not all the evidence is high quality, with very few longitudinal or intervention studies so little evidence to understand possible causal links. Very little content online is classifiable as explicitly harmful or definitively helpful, with responses varying by the individual and immediate context. The authors present a framework that seeks to represent the interplay in online use between the person, the medium, the content and the outcome.

**Originality/value** – This review highlights that content should not be considered separately to the person accessing it, so online safety means thinking about all users. Blanket removal or unthinking regulation may be more harmful than helpful. A focus on safe browsing is important and tools that limit time and diversify content would support this.

**Keywords** *Suicide, Social media, Systematic review, Self-harm*

**Paper type** *Research paper*

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## Background

Worldwide, 1.3% of deaths are from suicide ([World Health Organisation, 2021](#)) and rates of non-fatal self-harm are increasing, particularly in young girls ([Morgan et al., 2017](#)). Prospective studies show that self-harm is a major risk factor for subsequent suicide ([Carroll et al., 2014](#)) and the majority of those who die by suicide have a previous history of self-harm, and yet only a minority seek professional help following self-harm. Many people who die by suicide have not had recent contact with services ([National Confidential Inquiry into Suicide and Safety in Mental Health, 2021](#)), so there is a need to understand more about informal help-seeking, including the use of online resources.

Online access to good quality advice and support is important given that self-harm and suicidal thinking are often difficult to talk about directly. Many people who self-harm have never talked about it with anyone ([Armiento et al., 2014](#)) and for those who do, the internet is often the first medium for self-disclosure ([Rowe et al., 2014](#)). Social media, in particular, are widely used as a resource to share experiences and seek support ([Lavis and Winter, 2020](#)).

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Reviews have highlighted the potential benefits of posting and viewing content – such as reduction in feelings of isolation, increased access to peer support and a resulting sense of community (Dyson *et al.*, 2016).

However, there is concern that some online content may be contributing to increased rates of self-harm and may be linked to suicides, for example, through so-called normalising of behaviour, reinforcing negative thoughts and feelings or connecting people with others who encourage it (Lewis and Seko, 2016). Recent research suggests that the time spent online may be associated with mental health problems in young people, although this seems to be related at least in part to the loss of displaced activities, lack of sleep or increased sedentary behaviour (Viner *et al.*, 2019). A review published in 2017 suggested that there was significant potential for harm with the best evidence for high internet use and internet addiction as having negative influences and some evidence to suggest that searching for suicide content online may be associated with self-harm and suicidal thinking (Marchant *et al.*, 2017).

There are two aspects to the conundrum posed by this observation that accessing self-harm and suicidal content online may offer either benefits or potential harms. Firstly, it is unclear why the same material (pictures of scars for example) may be experienced as helpful by some and harmful by others, or helpful by an individual on one occasion and harmful by another. Secondly, there is no consensus about what it is exactly about the content or how it is being used that contributes to potential harm or benefit. For example, while explicit verbal encouragement of suicide or self-harm is universally seen as bad, as is bullying or trolling, it is less clear what ideas like normalising mean – since awareness of the self-harm of others might either promote similar behaviour or might encourage a participant to talk more freely and lead to a reduction of stigma. Graphic content is frequently referred to and assumed to be harmful but is not defined consistently; for some, it includes any scars or self-injury paraphernalia (Miguel *et al.*, 2017), others define it as deep wounds (Shanahan *et al.*, 2019).

The latest evidence included in prior reviews was published in 2015. Given the rapid development of the online space and the proliferation of research focussed particularly on social media, there is a need for an updated review of evidence on the impact of viewing and interacting with self-harm and suicidal content online – where possible unpicking the evidence to explore potential pathways to harm or benefit.

For this review, we have chosen to look across the range of content that would fall under a broad definition of self-harm that covers acts that include an intent to die and acts without such intent. Psychological and social risks for non-fatal self-harm and for suicide are similar and self-harm, even when not explicitly described as attempted suicide, is often accompanied by suicidal thinking (Kapur *et al.*, 2013). With user-generated content in particular it is often difficult to identify clear distinctions between that which is solely about suicide and that which is about self-harm without suicidal intent (Shanahan, Brennan and House, 2019).

For these reasons, we did not wish to draw a sharp distinction between self-harm and suicide content online, and therefore the primary research question for our review was: What is the published evidence on the nature of the association between interacting online with self-harm or suicidal content, and mental health outcomes? Our aim in asking this question was to develop an initial theoretical framework to understand how online content may influence mental health outcomes, to help focus future research and policy development.

## Method

The review was conducted in line with guidelines for the classification of reviews as systematic (Krnjic Martinic *et al.*, 2019).

### Study identification

An information specialist designed and ran expert search strategies using the two concepts self-harm/suicidal behaviours and internet use/social media. We ran customised searches in CINAHL, Embase, Medline, PsycInfo, Scopus, Social Care Online and Web of Science core collection. The searches were initially run in January 2020 and updated in February 2021.

We performed supplementary searches in Ethos, Clinical trials.gov, ICTRP, NICE Evidence and Social Care Institute for Excellence and 23 websites.

### Study selection

Records were screened against the inclusion criteria (Table 1) initially by title and abstract and then on the full text of potentially relevant studies by one reviewer. A second reviewer checked the list of excluded studies. Uncertain cases were discussed and resolved by consensus.

### Data extraction and quality assessment

Each included study received a quality rating out of five using the Mixed Methods Appraisal Tool version 2018 (Hong *et al.*, 2018).

For each study, we tabulated study identifiers; aims; type of study; methods; definition of self-harm/suicidal behaviour; participant demographics and sample size; research setting; key findings.

*Data synthesis:* The results for each included study were scrutinised and detail on potential harms or benefits were extracted. We noted the nature of the harm or benefit, any information on the subject of the harm or benefit, the mechanism of action (for example, passive viewing of content or active and interactive use responding to others) and the nature of the media. Synthesis was a collaborative process using a thematic approach but with attendance to mechanisms of action rather than simply the potential harm or benefit itself.

## Results

The database searches identified 9,549 records and a further 262 records were found in the supplementary searches. Once duplicates were removed there were 4,493 unique records. After screening by title and abstract and full-text review, 87 studies met our inclusion criteria

**Table 1** Inclusion and exclusion criteria

<i>Inclusion criteria</i>	<i>Exclusion criteria</i>
<ul style="list-style-type: none"><li>■ Studies that report empirical research on the internet/online use and self-harm or suicide content, either:-<ul style="list-style-type: none"><li>...nature of the exposure, or</li><li>...user experience, or</li><li>...mental health outcomes</li></ul></li><li>■ Studies of individuals of any age, gender, or ethnicity.</li><li>■ Studies from any country</li></ul>	<ul style="list-style-type: none"><li>■ Case reports, opinion pieces, discussion papers</li><li>■ Studies not written in English</li><li>■ Studies indexed prior to 2015</li><li>■ Studies on algorithm detection of content</li><li>■ Studies on trends in online traffic</li><li>■ Studies of clinical interventions delivered online</li></ul>

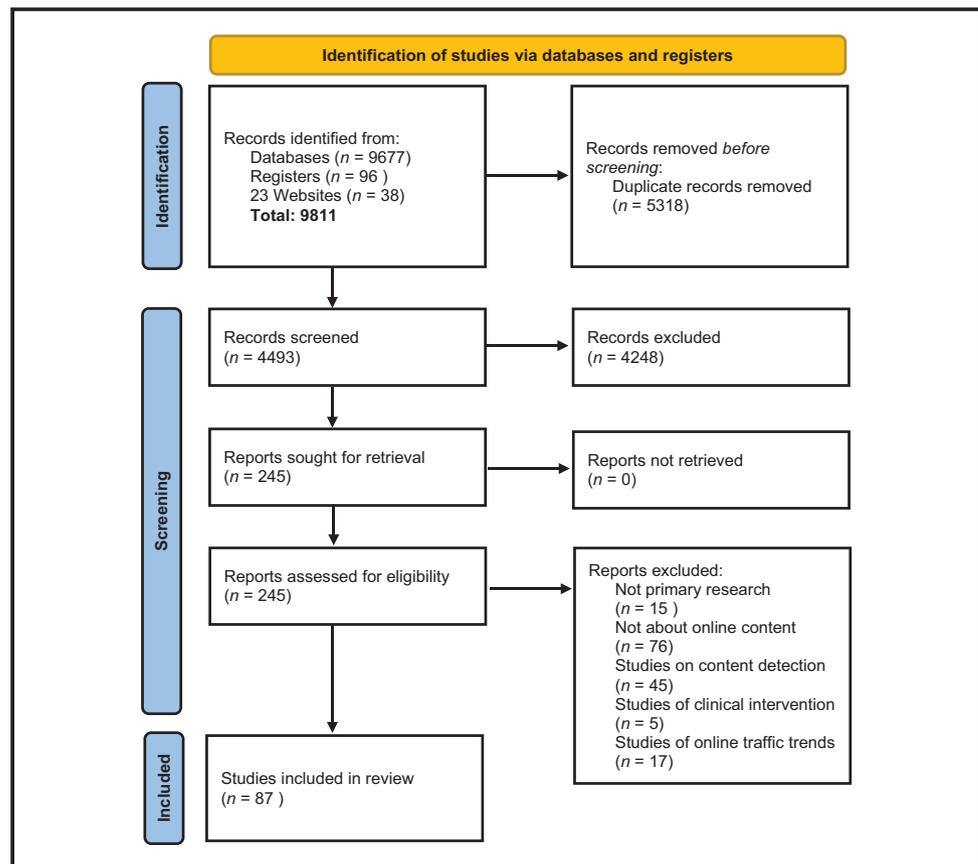
and have been included in the data synthesis (see Figure 1 PRISMA flow diagram). Most of the evidence was rated as medium quality or above; 38% achieved a score of 4 or 5, 36% a score of 3 and 25% scored below 3. A table of included studies is not included but is available on request.

In 61 of the studies, the content under investigation or discussed in the results could be classified as self-harm including suicidal thoughts or behaviours even where the subject in the title of the study was suicide or non-suicidal self-injury. Some studies (26) were focussed exclusively on suicide-related content, for example, results of searches for methods of suicide, reactions to live streams of suicide attempts or expressions of suicidal thoughts. We use the term self-harm in the results to identify content that is broad in nature and suicide where the content is explicitly and exclusively about suicidal thoughts or actions.

The majority of the included studies were descriptive in nature; exploring the nature of the content found online (51 studies), describing user knowledge (2 studies) or exploring user experiences (28 studies). There were only six experimental studies (An and Lee, 2019; Cheng and Yom-Tov, 2019; Corbitt-Hall *et al.*, 2016; Corbitt-Hall *et al.*, 2019; Lewis *et al.*, 2018; Till *et al.*, 2017). Only four of the included studies had a longitudinal element (Arendt *et al.*, 2019; Cheng and Yom-Tov, 2019; Scherr and Reinemann, 2016; Till *et al.*, 2017). Of the 36 studies focussed on users rather than content, 16 of these were in populations with direct experience of self-harm or thoughts of self-harm.

One of the difficulties in making sense of the evidence related to our question is the heterogeneity of the studies. Firstly, there is much diversity in the nature of the form and

**Figure 1** PRISMA flow diagram



content itself including that which comes from the types of platform that is hosting content. Recent theory in this field has proposed a framework for describing and exploring host-related features that may be relevant in understanding the effect of online interventions (Moreno and D'Angelo, 2019), but we found no evidence of the systematic use of so-called site affordances as a way of understanding their impact. There is added complexity from the nature of the users accessing content, as well as the nature of the interactions with the content. Table 2 summarises the main variables we identified as relevant to answering our research question.

A key design issue is the availability of longitudinal or experimental studies. The majority of the studies were cross-sectional or qualitative. Only three of the studies included a participant-level temporal assessment (Arendt *et al.*, 2019; Scherr and Reinemann, 2016; Till *et al.*, 2017) and only one of these suggested that exposure to content (on Instagram) may lead to increased risk of self-harm or suicidal thinking one month later (Arendt *et al.*, 2019). Interestingly, a longitudinal panel survey of 1,377 young people and adults in Germany found that "suicidality" was associated with cross-sectional data on accessing forums but that this association was not evident at follow-up one month later (Scherr and Reinemann, 2016). An experimental study in a sample of 61 participants who had a history of self-harm found that exposure to hopeful messages on YouTube improved positive attitudes about recovery whereas exposure to hopeless messages did not increase hopeless attitudes to recovery (Lewis *et al.*, 2018).

### *The person and the nature of user experience*

Of the studies that described the nature of user experience related to content online, 17 (61%) were in populations who were, or had been, active users of such content or had personal experience of self-harm. Active use involves posting, consuming or interacting purposefully with online content. Used in this way the online environment can be an important place for conversations about self-harm. Online communities provide opportunities for the expression of feelings and can facilitate better communication about suicide and self-harm with individuals more willing to initiate and participate in conversations. Social media is sometimes a safe space to express thoughts of self-harm or suicide (Davis and Lewis, 2019; Gargiulo and Margherita, 2019; Gibson *et al.*, 2019; Mars *et al.*, 2015) or ask for sensitive advice, for example, about scar management (Jacob *et al.*, 2017). This may be particularly salient for socially anxious young people (Bell *et al.*, 2018). There is some evidence that such active use is associated with lower levels of mood disturbance than more passive (reading only, or "lurking") use (Escobar-Viera *et al.*, 2018), but findings come from cross-sectional studies and are, therefore, unable to clarify the direction of the cause of any effect.

The remaining 11 studies were surveys (Arendt *et al.*, 2019; Keipi *et al.*, 2017; Liu *et al.*, 2017; Mars *et al.*, 2015; Minkinen *et al.*, 2017) or focus groups (Gibson *et al.*, 2019; Gritton *et al.*, 2017) studies with young people, or surveys in general adult populations (Choi and Noh, 2019; Harris *et al.*, 2017; Scherr and Reinemann, 2016). These studies were less helpful in shedding light on the nature of online use and experience from the individual's perspective.

For some in these studies, it is the possibility of anonymity that is important when either searching for information or sharing feelings (Bell *et al.*, 2018; Coulson *et al.*, 2017; Davis and Lewis, 2019; Giacchero Vedana *et al.*, 2018; Gibson *et al.*, 2019; Lewis and Michal, 2016; Wiggins *et al.*, 2016). A further important feature is that the online world is available and easily accessible when needed in times of crisis (Seko *et al.*, 2015; Tucker and Lavis, 2019; Williams *et al.*, 2020) as opposed to professional services for which there is often a long waiting list (Coulson *et al.*, 2017).

There is little evidence to quantify the extent of incidental, or unintended, exposure to self-harm content. A study using data from the ALSPAC survey of young people reported self-

**Table 2** Variables of importance

The person		
Who is online?	Why online?	When online?
<ul style="list-style-type: none"> <li>■ Individuals who have/are self-harming</li> <li>■ Individuals who have thoughts of self-harm</li> <li>■ Individuals with no thoughts of self-harm but who are unhappy or feel isolated</li> <li>■ Friends/family of above</li> <li>■ People with no direct experience of self-harm</li> </ul>	<ul style="list-style-type: none"> <li>■ Narrating/illustrating own story</li> <li>■ Presenting self</li> <li>■ Engaging in conversation/making connections</li> <li>■ Actively seeking/purposefully consuming content of others</li> <li>■ Passively browsing general social media content (incidental exposure)</li> </ul>	<ul style="list-style-type: none"> <li>■ In crisis</li> <li>■ Feeling isolated/unhappy</li> <li>■ General browsing</li> </ul>
The medium		
What form of material?	What type of content?	What characteristics of sites hosting content?
<ul style="list-style-type: none"> <li>■ Images</li> <li>■ Videos</li> <li>■ Blogs</li> <li>■ Short posts</li> <li>■ Threads</li> <li>■ Discussion boards</li> <li>■ Games</li> <li>■ memes</li> </ul>	<ul style="list-style-type: none"> <li>■ Information</li> <li>■ Personal stories</li> <li>■ Celebrity news</li> <li>■ Supportive</li> <li>■ Abusive/bullying/trolling</li> <li>■ Inciting</li> <li>■ Graphic</li> </ul>	<ul style="list-style-type: none"> <li>■ Anonymity</li> <li>■ Privacy</li> <li>■ Interactivity</li> <li>■ Moderation</li> <li>■ Regulation</li> <li>■ Algorithmic</li> </ul>
The outcomes		
Positive	Negative	
<ul style="list-style-type: none"> <li>■ Support</li> <li>■ Reduced isolation</li> <li>■ Acceptance/reduced stigma</li> <li>■ Self-understanding</li> <li>■ Practical advice</li> </ul>	<ul style="list-style-type: none"> <li>■ Reliving experiences</li> <li>■ Stimulus to self-harm</li> <li>■ Feeling of pressure – to help others</li> <li>■ Feeling of social pressure to present self in a certain way</li> </ul>	

harm-related internet use in 14.9% of the sample who had never self-harmed (Mars *et al.*, 2015). A survey of Finnish ( $n = 555$ ) and American ( $n = 1,032$ ) youth reported that about 12% had seen internet sites about self-harm and 9% had seen sites about suicide in the previous 12 months (Keipi *et al.*, 2017). However, neither of these studies quantified incidental versus active exposure. While there is some evidence to suggest that exposure to content is associated with increased feelings of self-harm and/or suicide (Branley and Covey, 2017; Harris *et al.*, 2017), this evidence is cross-sectional and cannot give us information on causality. One study found that those who went online for suicide-related

purposes were more likely to be willing to seek help (Harris *et al.*, 2017) and a further study found that exposure is just as likely to be too helpful sites as to harmful ones (Mars *et al.*, 2015).

### *The medium and the nature of form and content*

Over half of the included studies (51 studies) focussed solely on the nature and form of the content found online. Of these, 28 studies focussed on an element of the content itself as the unit of analysis, either on particular platforms for example, videos about recovery from self-harm on YouTube (Ryan-Vig *et al.*, 2019) or tweets about self-harm or suicide (Hilton, 2017; Lee and Kwon, 2018; Spates *et al.*, 2020) or posted content across different media (for example, images tagged as self-harm (Shanahan *et al.*, 2019) or posts tagged with #cutting (Miguel *et al.*, 2017). The remaining 23 studies engaged to some extent with the interactivity of platforms by following particular threads on discussion boards or chats (Niederkröthaler *et al.*, 2016; Niederkröthaler and Till, 2019; Williams *et al.*, 2020) or analysing comments and responses in addition to the original posts (Carlyle *et al.*, 2018; Dagar and Falcone, 2020; Tao and Jacobs, 2019).

Some studies highlighted content they regarded as explicitly harmful, such as the use of Twitter to make suicide pacts (Lee and Kwon, 2018), active encouragement to suicide in response to the expression of suicidal thoughts (Brown *et al.*, 2019; O'Dea *et al.*, 2018) and baiting or jeering in response to suicide attempts (Li *et al.*, 2015; Ma *et al.*, 2016; Phillips and Mann, 2019; Westerlund *et al.*, 2015). Some studies noted websites or discussion boards that were focussed on encouraging self-harm or suicide and included discussion on methods (Biddle *et al.*, 2018; T. Niederkröthaler *et al.*, 2016; Niederkröthaler and Till, 2019). It is unclear whether in this category should be included milder expressions of positivity about self-harm or suicide, that did not include active explicit encouragement. For example, one study noted that some images tagged as self-harm included comments that depicted scars as cool or attractive (Shanahan *et al.*, 2019), and discussions about particular suicides in one study found comments that talked of interest and excitement in the act (Westerlund *et al.*, 2015). Otherwise, the diversity across the form, content and site characteristics makes it difficult to give definitive answers to what might be harmful about content.

However, many of the studies exploring the nature of content found that much of the content could be classified as expressing distress, offering or seeking support (Davis and Lewis, 2019; Eichenberg and Schott, 2017; Guidry *et al.*, 2021; Spates *et al.*, 2020). In the studies that explored comments on posts, there were examples of jeering and baiting but the majority of interaction was offering support or suggestions for help-seeking (Brown *et al.*, 2019; Carlyle *et al.*, 2018; Li *et al.*, 2019; Phillips and Mann, 2019).

Studies that explored the nature of images found that not all images tagged with labels related to self-harm were pictures of injury. Images depicting injury ranged from pictures of healed scars to pictures of recent severe wounds. The proportion of images of injury varied across studies: 8.8% of pictures were found using common German # for non-suicidal self-injury on Instagram, 12.6% of which were characterised as graphic (Brown *et al.*, 2018); 29% of images found across Twitter, Instagram and Tumblr found using common search terms for self-harm, none of which were classed as graphic (Shanahan *et al.*, 2019); 75% of images on Instagram with the #selfharm, no rating of severity given (Fulcher *et al.*, 2020). How the studies operationalised the searches for content is likely to be a factor in the subsequent results.

### *The outcomes: Positives versus negatives*

There are many positives reported from being in these online spaces. For some, posting online helped to reduce their symptoms of distress (Eichenberg and Schott, 2017), was

used as an alternative to the act itself (Margherita and Gargiulo, 2018) or put them in a place to stop self-harm completely (Lewis and Michal, 2016). Posting within online communities can help users to understand and make sense of some of their own emotions in relation to urges and acts of self-harm (Coulson *et al.*, 2017; Gargiulo and Margherita, 2019; Lewis and Michal, 2016; Shanahan *et al.*, 2019; Williams *et al.*, 2020 Lavis and Winter2020), as well as gain a sense of identity (Shanahan *et al.*, 2019) or self-worth (Seko and Lewis, 2018). Individuals posting to message boards and other online communities also frequently talked about drawing benefit from knowing that the narration of their own story may also be useful to others (Coulson *et al.*, 2017; Eichenberg and Schott, 2017; Lewis and Michal, 2016; Y. Seko *et al.*, 2015; Tucker and Lavis, 2019). It should be noted that in considering potentially positive outcomes, our search excluded studies of online resources developed as part of an intervention (see e.g. Romeu *et al.*, 2020).

However, the opposite can also be true. The process of posting about experiences can entail a distressing reliving of painful situations (O'Dea *et al.*, 2018; Tucker and Lavis, 2019), and providing support to other posters can be a heavy responsibility (Lavis and Winter, 2020). Users have reported being triggered to harm themselves when viewing posts (Brown *et al.*, 2020; Y. Seko *et al.*, 2015) or using online images as part of their self-harm ritual (Jacob *et al.*, 2017). Online spaces can exert social pressures that escalate self-harm (Lavis and Winter, 2020), and users have reported being harassed or bullied because of posts (Brown *et al.*, 2020).

### *The person and the place*

Our synthesis suggests that, in thinking about the nature of encounters with self-harm or suicide content online, there are two broad areas of importance – the person who is online and the medium they are engaging with. Both of these areas are multi-faceted and the potential outcomes, either positive or negative, are the result of the interplay between multiple variables. The variables identified in Table 2 do not reside in particular types of users (the same person can be a passive browser at one time and an active creator of content at other times; can be seeking support at one time yet providing advice at another) nor do they reside in specific content (an image of healed scars can be a “trigger” for one person yet a reminder of recovery for another). Except for content that is explicitly offering instruction or encouragement to act, our results suggest that for most content the power to affect outcomes does not lie in the content itself; the same content can have different effects on different users and even on the same user at different time points depending on their current emotional state. It is also the case that the posting of similar content can have very different functions that are not evident from focussing on the nature of the content itself. As Lavis and Winter (2020) note, posting an image of cuts may signify that a young person feels at risk of injuring themselves and is seeking help.

### **Discussion**

The main finding of this review is that the issue of the effect of self-harm and suicide material found online cannot be reduced to a simple descriptive treatment of form or content. The nature of content that is tagged as self-harm is diverse and much does not have explicit self-harm or suicide content despite the tag. There is a multitude of users in these spaces; those creating the content, interacting with content or just passively consuming content or simply browsing the spaces. Content cannot be separated from the person (both the person posting and the person consuming) and it is likely to be the interaction between content, person and space that determines outcomes.

There is content easily accessible online that most commentaries would regard as undesirable: quasi-instructional description and discussion of methods, active explicit encouragement, bullying of those who express distress. Such content is widely recognised as likely to be harmful while at the same time having no evidence to suggest it might benefit those who access it: it should be removed where possible (John *et al.*, 2018). Content that suggests self-harm or suicide

is positive or desirable may also be harmful, although the pathway to this harm is less clear. There has been some discussion about this being through “normalising” the behaviour (Dyson *et al.*, 2016). However, the concept of normalising is ill-defined and often refers not just to content that promotes a positive angle on such behaviour, but to any content that discusses self-harm or suicide, suggesting that familiarity is a pathway to harm (Daine *et al.*, 2013). More investigation is needed to unpick this if, as in other aspects of mental health, talking about the issues is widely regarded as positive. Help-seeking in those who self-harm is hindered by concerns about the potential reaction of others (Rowe *et al.*, 2014) so the labelling of any expression of self-harm online as harmful is problematic if it inhibits those who are seeking support.

For the majority of online material, it is impossible to place a label of either helpful or harmful on the content *per se*. This is because users are not simply passive victims of toxic exposure – it is the interaction with content by users in time and place that is likely to explain most outcomes. This is particularly true of social media where the environment is that of a performative space (Bechmann and Lomborg, 2013). Content is generated by users – curated in a variety of ways to reflect communicative desires at particular times and in diverse, fluctuating, personal circumstances.

Current discourse on safer online spaces overemphasises the power invested in the content itself, with a resulting push for blanket suppression of that content. The evidence suggests that such regulation may cause harm – shutting down conversations and leading to increasing stigmatisation of self-harm; increasing shame and feelings of low self-worth in those posting content; pushing those who are struggling with feelings into more unregulated, darker spaces where the content is likely to be less diverse and more intense.

### ***Limitations of this review***

We used a broad, inclusive search strategy to identify relevant studies. This created a challenge for synthesis as the nature of the studies was extremely diverse. It is, therefore, impossible to present here a breakdown of the contribution of all studies to the results and the key themes are instead presented thematically.

We included evidence on content regardless of any established intent to end life and our synthesis cuts across both self-harm and suicide content. This may have masked key differences in pathways to harm.

### ***Implications***

*For policy*, a more nuanced approach is necessary to encourage safer online spaces. A focus on indiscriminate removal of content about self-harm or suicide is likely to cause harm to those users who are struggling with their feelings and seeking support or solace.

There is a role for regulation of content, but it will be more usefully focussed on the removal of explicit harmful material as defined above. To be successful, careful attention will be needed to the definition of terms – for example, as we have noted for graphic imagery and the idea of encouragement.

Better regulation of algorithmic pushing of content is needed, to reduce the intensity of content that is suggested to users based on their prior use.

Since the duration of exposure seems important, regulation should be aimed at ensuring that there are time limits on the ability to access material about self-harm and suicide.

*For research*, by far the most important need is for studies that use longitudinal designs and capture the complexity of the space – those that can triangulate data from the person, place and context.

In relation to content, the concept of “normalising” needs elucidation; we need to understand what is it about the content that promotes self-harm and how does such content leads to increased rates.

We need more research into what constitutes harmful imagery – moving beyond the idea that “graphic” is a self-explanatory descriptor or that pictures of injuries are necessarily harmful.

In relation to the online experience, more attention is needed to its interactive nature: how individually-tailored content may be harmful, especially when based upon algorithmic pushing and how it may be helpful especially when curated actively by the individual online.

And importantly, research needs to include exploration of factors that increase the ability of the individual to manage their own experience so that it benefits them, responding to the needs that led them online in the first place.

## References

An, S. and Lee, H. (2019), “Suicide stigma in online social interactions: impacts of social capital and suicide literacy”, *Health Communication*, Vol. 34 No. 11, pp. 1340-1349.

Arendt, F., Scherr, S. and Romer, D. (2019), “Effects of exposure to self-harm on social media: evidence from a two-wave panel study among young adults”, *New Media & Society*, Vol. 21 Nos 11/12, pp. 2422-2442.

Armiento, J.S., Hamza, C.A. and Willoughby, T. (2014), “An examination of disclosure of nonsuicidal self-injury among university students”, *Journal of Community & Applied Social Psychology*, Vol. 24 No. 6, pp. 518-533.

Bechmann, A. and Lomborg, S. (2013), “Mapping actor roles in social media: different perspectives on value creation in theories of user participation”, *New Media & Society*, Vol. 15 No. 5, pp. 765-781.

Bell, J., Mok, K., Gardiner, E. and Pirkis, J. (2018), “Suicide-related internet use among suicidal young people in the UK: characteristics of users, effects of use, and barriers to offline help-seeking”, *Archives of Suicide Research*, Vol. 22 No. 2, pp. 263-277.

Biddle, L., Derges, J., Goldsmith, C., Donovan, J.L. and Gunnell, D. (2018), “Using the internet for suicide-related purposes: contrasting findings from young people in the community and self-harm patients admitted to hospital”, *PLoS One*, Vol. 13 No. 5, p. e0197712.

Branley, D.B. and Covey, J. (2017), “Is exposure to online content depicting risky behavior related to viewers’ own risky behavior offline?”, *Computers in Human Behavior*, Vol. 75, pp. 283-287.

Brown, R.C., Fischer, T., Goldwisch, D.A. and Plener, P.L. (2020), “I just finally wanted to belong somewhere-qualitative analysis of experiences with posting pictures of Self-Injury on Instagram”, *Frontiers in Psychiatry*, Vol. 11, p. 274.

Brown, R.C., Bendig, E., Fischer, T., Goldwisch, A.D., Baumeister, H. and Plener, P.L. (2019), “Can acute suicidality be predicted by instagram data? Results from qualitative and quantitative language analyses”, *PLoS One*, Vol. 14 No. 9, p. e0220623.

Brown, R.C., Fischer, T., Goldwisch, A.D., Keller, F., Young, R. and Plener, P.L. (2018), “#cutting: non-suicidal self-injury (NSSI) on Instagram”, *Psychological Medicine*, Vol. 48 No. 2, pp. 337-346.

Carlyle, K.E., Guidry, J.P.D., Williams, K., Tabaac, A. and Perrin, P.B. (2018), “Suicide conversations on instagram™: contagion or caring?”, *Journal of Communication in Healthcare*, Vol. 11 No. 1, pp. 12-18.

Carroll, R., Metcalfe, C. and Gunnell, D. (2014), “Hospital presenting self-harm and risk of fatal and non-fatal repetition: systematic review and Meta-analysis”, *PloS One*, Vol. 9 No. 2, pp. e89944-e89944.

Cheng, Q. and Yom-Tov, E. (2019), “Do search engine helpline notices aid in preventing suicide? Analysis of archival data”, *Journal of Medical Internet Research*, Vol. 21 No. 3.

Choi, D.H. and Noh, G.Y. (2019), “Associations between social media use and suicidal ideation in South Korea: mediating roles of social capital and self-esteem”, *Health Communication*, Vol. 35 No. 14, pp. 1754-1761.

Corbitt-Hall, D.J., Gauthier, J.M., Davis, M.T. and Witte, T.K. (2016), “College students’ responses to suicidal content on social networking sites: an examination using a simulated facebook newsfeed”, *Suicide and Life-Threatening Behavior*, Vol. 46 No. 5, pp. 609-624.

Corbitt-Hall, D.J., Gauthier, J.M. and Troop-Gordon, W. (2019), “Suicidality disclosed online: using a simulated facebook task to identify predictors of support giving to friends at risk of self-harm”, *Suicide and Life-Threatening Behavior*, Vol. 49 No. 2, pp. 598-613.

- Coulson, N.S., Bullock, E. and Rodham, K. (2017), "Exploring the therapeutic affordances of self-harm online support communities: an online survey of members", *JMIR Mental Health*, Vol. 4 No. 4, p. e44.
- Dagar, A. and Falcone, T. (2020), "High viewership of videos about teenage suicide on YouTube", *Journal of the American Academy of Child & Adolescent Psychiatry*, Vol. 59 No. 1, pp. 1-3.
- Daine, K., Hawton, K., Singaravelu, V., Stewart, A., Simkin, S. and Montgomery, P. (2013), "The power of the web: a systematic review of studies of the influence of the internet on self-harm and suicide in young people", *PLoS One*, Vol. 8 No. 10, p. e77555.
- Davis, S. and Lewis, C.A. (2019), "Addiction to self-harm? The case of online postings on self-harm message boards", *International Journal of Mental Health and Addiction*, Vol. 17 No. 4, pp. 1020-1035.
- Davis, S. and Lewis, C.A. (2019), "Impassioned communication and virtual support roles of online postings: the case of self-harmers", *Crisis and Loss*, Vol. 27 No. 1, pp. 19-35.
- Dyson, M.P., Hartling, L., Shulhan, J., Chisholm, A., Milne, A., Sundar, P., Shannon, D. and Newton, A.S. (2016), "A systematic review of social media use to discuss and view deliberate self-harm acts", *PLoS One*, Vol. 11 No. 5, pp. e0155813.
- Eichenberg, C. and Schott, M. (2017), "An empirical analysis of internet message boards for self-harming behavior", *Archives of Suicide Research*, Vol. 21 No. 4, pp. 672-686.
- Escobar-Viera, C.G., Shensa, A., Bowman, N.D., Sidani, J.E., Knight, J., James, A.E. and Primack, B.A. (2018), "Passive and active social media use and depressive symptoms among United States adults", *Cyberpsychology, Behavior, and Social Networking*, Vol. 21 No. 7, pp. 437-443.
- Fulcher, J.A., Dunbar, S., Orlando, E., Woodruff, S.J. and Santarossa, S. (2020), "#selfharm on Instagram: understanding online communities surrounding non-suicidal self-injury through conversations and common properties among authors", *Digital Health*, Vol. 6.
- Gargiulo, A. and Margherita, G. (2019), "Narratives of self-harm: the experience of young women through the qualitative analysis of blogs", *Mediterranean Journal of Clinical Psychology*, Vol. 7 No. 1.
- Giacchero Vedana, K.G., Di Donato, G., Fonseca Da Silva, A., Corrêa Matias Pereira, C., Inocenti Miasso, A., Guidorizzi Zanetti, A.C. and Longo Borges, T. (2018), "Most popular posts about suicide in blogs", *Pensar Enfermagem*, Vol. 22 No. 1, pp. 61-73.
- Gibson, K., Wilson, J., Le Grice, J. and Seymour, F. (2019), "Resisting the silence: the impact of digital communication on young people's talk about suicide", *Youth & Society*, Vol. 51 No. 8, pp. 1011-1030.
- Gritton, J., Rushing, S.C., Stephens, D., Ghost Dog, T., Kerr, B. and Moreno, M.A. (2017), "Responding to concerning posts on social media: insights and solutions from American Indian and Alaska Native youth", *American Indian and Alaska Native Mental Health Research*, Vol. 24 No. 3, pp. 63-87.
- Guidry, J.P.D., O'Donnell, N.H., Miller, C.A., Perrin, P.B. and Carlyle, K.E. (2021), "Pinning despair and distress – suicide-related content on visual social media platform pinterest", *Crisis*, Vol. 42 No. 4, pp. 270-277.
- Harris, K.M., Starcevic, V., Ma, J., Zhang, W. and Aboujaoude, E. (2017), "Suicidality, psychopathology, and the internet: online time vs. online behaviors", *Psychiatry Research*, Vol. 255, pp. 341-346.
- Hilton, C.E. (2017), "Unveiling self-harm behaviour: what can social media site twitter tell us about self-harm? A qualitative exploration", *Journal of Clinical Nursing*, Vol. 26 Nos 11/12, pp. 1690-1704.
- Hong, Q.N., Pluye, P., Fabreque, S., Bartlett, G., Boardman, F., Cargo, M., Dagenais, P., Gagnon, M., Griffiths, F., Nicolau, B., O'Cathain, A., Rousseau, M. and Vedel, I. (2018), *Mixed Methods Appraisal Tool (MMAT) Version 2018*, McGill University, Canada.
- Jacob, N., Evans, R. and Scourfield, J. (2017), "The influence of online images on self-harm: a qualitative study of young people aged 16-24", *Journal of Adolescence*, Vol. 60, pp. 140-147.
- John, A., Glendenning, A.C., Marchant, A., Montgomery, P., Stewart, A., Wood, S., Lloyd, K. and Hawton, K. (2018), "Self-harm, suicidal behaviours, and cyberbullying in children and young people: systematic review", *Journal of Medical Internet Research*, Vol. 20 No. 4, p. e129.
- Kapur, N., Cooper, J., O'Connor, R.C. and Hawton, K. (2013), "Non-suicidal self-injury v. attempted suicide: new diagnosis or false dichotomy?", *British Journal of Psychiatry*, Vol. 202 No. 5, pp. 326-328.
- Keipi, T., Oksanen, A., Hawdon, J., Nasi, M. and Rasanen, P. (2017), "Harm-advocating online content and subjective well-being: a cross-national study of new risks faced by youth", *Journal of Risk Research*, Vol. 20 No. 5, pp. 634-649.

- Krnic Martinic, M., Pieper, D., Glatt, A. and Puljak, L. (2019), "Definition of a systematic review used in overviews of systematic reviews, meta-epidemiological studies and textbooks", *BMC Medical Research Methodology*, Vol. 19 No. 1, pp. 203.
- Lavis, A. and Winter, R. (2020), "#online harms or benefits? An ethnographic analysis of the positives and negatives of peer-support around self-harm on social media", *Journal of Child Psychology and Psychiatry*, Vol. 61 No. 8, pp. 842-854.
- Lee, S.Y. and Kwon, Y. (2018), "Twitter as a place where people meet to make suicide pacts", *Public Health*, Vol. 159, pp. 21-26.
- Lewis, S.P. and Michal, N.J. (2016), "Start, stop, and continue: preliminary insight into the appeal of self-injury e-communities", *Journal of Health Psychology*, Vol. 21 No. 2, pp. 250-260.
- Lewis, S.P. and Seko, Y. (2016), "A Double-Edged sword: a review of benefits and risks of online non-suicidal Self-Injury activities", *Journal of Clinical Psychology*, Vol. 72 No. 3, pp. 249-262.
- Lewis, S.P., Seko, Y. and Joshi, P. (2018), "The impact of YouTube peer feedback on attitudes toward recovery from non-suicidal self-injury: an experimental pilot study", *Digital Health*, Vol. 4.
- Li, A., Jiao, D., Liu, X., Sun, J. and Zhu, T. (2019), "A psycholinguistic analysis of responses to live-stream suicides on social media", *International Journal of Environmental Research and Public Health*, Vol. 16 No. 16, p. 2848.
- Li, A., Huang, X., Hao, B., O'Dea, B., Christensen, H. and Zhu, T. (2015), "Attitudes towards suicide attempts broadcast on social media: an exploratory study of Chinese microblogs", *PeerJ*, Vol. 3, p. e1209.
- Liu, H.C., Liu, S.I., Tjung, J.J., Sun, F.J., Huang, H.C. and Fang, C.K. (2017), "Self-harm and its association with internet addiction and internet exposure to suicidal thought in adolescents", *Journal of the Formosan Medical Association*, Vol. 116 No. 3, pp. 153-160.
- Ma, J., Zhang, W., Harris, K., Chen, Q. and Xu, X. (2016), "Dying online: live broadcasts of Chinese emerging adult suicides and crisis response behaviors", *BMC Public Health*, Vol. 16 No. 1, pp. 774.
- Marchant, A., Hawton, K., Stewart, A., Montgomery, P., Singaravelu, V., Lloyd, K. and John, A. (2017), "A systematic review of the relationship between internet use, self-harm and suicidal behaviour in young people: the good, the bad and the unknown", *PLoS One*, Vol. 12 No. 8, pp. e0181722.
- Margherita, G. and Gargiulo, A. (2018), "A comparison between pro-anorexia and non-suicidal self-injury blogs: from symptom-based identity to sharing of emotions", *Psychodynamic Practice*, Vol. 24 No. 4, pp. 346-363.
- Mars, B., Heron, J., Biddle, L., Donovan, J.L., Holley, R., Piper, M., Potokar, J., Wyllie, C. and Gunnell, D. (2015), "Exposure to, and searching for, information about suicide and self-harm on the internet: prevalence and predictors in a population based cohort of young adults", *Journal of Affective Disorders*, Vol. 185, pp. 239-245.
- Miguel, E.M., Chou, T., Golik, A., Cornacchio, D., Sanchez, A.L., DeSerisy, M. and Comer, J.S. (2017), "Examining the scope and patterns of deliberate self-injurious cutting content in popular social media", *Depression and Anxiety*, Vol. 34 No. 9, pp. 786-793.
- Minkinen, J., Oksanen, A., Kaakinen, M., Keipi, T. and Rasanen, P. (2017), "Victimization and exposure to pro-self-harm and pro-suicide websites: a cross-national study", *Suicide and Life-Threatening Behavior*, Vol. 47 No. 1, pp. 14-26.
- Moreno, M.A. and D'Angelo, J. (2019), "Social media intervention design: applying an affordances framework", *Journal of Medical Internet Research*, Vol. 21 No. 3, p. e11014.
- Morgan, C., Webb, R.T., Carr, M.J., Kontopantelis, E., Green, J., Chew-Graham, C.A., Kapur, N. and Ashcroft, D.M. (2017), "Incidence, clinical management, and mortality risk following self harm among children and adolescents: cohort study in primary care", *BMJ*, Vol. 359.
- National Confidential Inquiry into Suicide and Safety in Mental Health (2021), "Annual Report 2021".
- Niederkröthenthaler, T., Gould, M., Sonneck, G., Stack, S. and Till, B. (2016), "Predictors of psychological improvement on non-professional suicide message boards: content analysis", *Psychological Medicine*, Vol. 46 No. 16, pp. 3429-3442.
- Niederkröthenthaler, T. and Till, B. (2019), "Types of stressors on nonprofessional against-suicide and pro-suicide message boards: content analysis. Crisis", *Crisis*, Vol. 40 No. 4, pp. 257-264.
- O'Dea, B., Achilles, M.R., Larsen, M.E., Batterham, P.J., Calear, A.L. and Christensen, H. (2018), "The rate of reply and nature of responses to suicide-related posts on twitter", *Internet Interventions*, Vol. 13, pp. 105-107.

- Phillips, J.G. and Mann, L. (2019), "Suicide baiting in the internet era", *Computers in Human Behavior*, Vol. 92, pp. 29-36.
- Romeu, D., Guthrie, E., Brennan, C., Farley, K. and House, A. (2020), "Online resources for people who self-harm and those involved in their informal and formal care: observational study with content analysis", *International Journal of Environmental Research and Public Health*, Vol. 17 No. 10, p. 3532.
- Rowe, S.L., French, R.S., Henderson, C., Ougrin, D., Slade, M. and Moran, P. (2014), "Help-seeking behaviour and adolescent self-harm: a systematic review", *Australian & New Zealand Journal of Psychiatry*, Vol. 48 No. 12, pp. 1083-1095, doi: [10.1177/0004867414555718](https://doi.org/10.1177/0004867414555718).
- Ryan-Vig, S., Gavin, J. and Rodham, K. (2019), "The presentation of self-harm recovery: a thematic analysis of youtube videos", *Deviant Behavior*, Vol. 40 No. 12, pp. 1596-1608.
- Scherr, S. and Reinemann, C. (2016), "First do no harm: cross-sectional and longitudinal evidence for the impact of individual suicidality on the use of online health forums and support groups", *Computers in Human Behavior*, Vol. 61, pp. 80-88.
- Seko, Y. and Lewis, S.P. (2018), "The self-harmed, visualized, and reblogged: remaking of self-injury narratives on tumblr", *New Media & Society*, Vol. 20 No. 1, pp. 180-198.
- Seko, Y., Kidd, S.A., Wiljer, D. and McKenzie, K.J. (2015), "On the creative edge: exploring motivations for creating non-suicidal self-injury content online", *Qualitative Health Research*, Vol. 25 No. 10, pp. 1334-1346.
- Shanahan, N., Brennan, C. and House, A. (2019), "Self-harm and social media: thematic analysis of images posted on three social media sites", *BMJ Open*, Vol. 9 No. 2, p. e027006.
- Spates, K., Ye, X. and Johnson, A. (2020), "'I just might kill myself': suicide expressions on twitter", *Death Studies*, Vol. 44 No. 3, pp. 189-194.
- Tao, L. and Jacobs, L. (2019), "?inbox me, please? Analysing comments on anonymous facebook posts about depression and suicide", *Journal of Psychology in Africa*, Vol. 29 No. 5, pp. 491-498.
- Till, B., Tran, U.S., Voracek, M. and Niederkrotenthaler, T. (2017), "Beneficial and harmful effects of educative suicide prevention websites: randomised controlled trial exploring papageno v. Werther effects", *British Journal of Psychiatry*, Vol. 211 No. 2, pp. 109-115.
- Tucker, I.M. and Lavis, A. (2019), "Temporalities of mental distress: digital immediacy and the meaning of 'crisis' in online support", *Sociology of Health & Illness*, Vol. 41 No. 1, pp. 132-146.
- Viner, R.M., Gireesh, A., Stiglic, N., Hudson, L.D., Goddings, A.-L., Ward, J.L. and Nicholls, D.E. (2019), "Roles of cyberbullying, sleep, and physical activity in mediating the effects of social media use on mental health and wellbeing among young people in England: a secondary analysis of longitudinal data", *The Lancet Child & Adolescent Health*, Vol. 3 No. 10, pp. 685-696.
- Westerlund, M., Hadlaczky, G. and Wasserman, D. (2015), "Case study of posts before and after a suicide on a Swedish internet forum", *British Journal of Psychiatry*, Vol. 207 No. 6, pp. 476-482.
- Wiggins, S., McQuade, R. and Rasmussen, S. (2016), "Stepping back from crisis points: the provision and acknowledgment of support in an online suicide discussion forum", *Qualitative Health Research*, Vol. 26 No. 9, pp. 1240-1251.
- Williams, A.J., Nielsen, E. and Coulson, N.S. (2020), "'They aren't all like that': perceptions of clinical services, as told by self-harm online communities", *Journal of Health Psychology*, Vol. 25 Nos 13/14, pp. 2164-2177.
- World Health Organisation (2021), "Suicide worldwide in 2019: global health estimates".

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