Are youth suicide memorial sites on Facebook different from those for other sudden deaths?

Jonathan Scourfield, Rhiannon Evans, Gualtiero Colombo, Daniel Burrows, Nina Jacob, Matthew Williams & Pete Burnap

Published online: 16 May 2019.

Submit your article to this journal

Article views: 94

View Crossmark data

Routledge
Taylor & Francis Group

Are youth suicide memorial sites on Facebook different from those for other sudden deaths?

Jonathan Scourfield[a], Rhiannon Evans[a], Gualtiero Colombo[b], Daniel Burrows[a], Nina Jacob[c], Matthew Williams[a], and Pete Burnap[b]

[a]School of Social Science, Cardiff University, Cardiff, UK; [b]School of Computer Science and Informatics, Cardiff University, Cardiff, UK; [c]Centre for Trials Research, Cardiff University, Cardiff, UK

ABSTRACT

To explore possible distinctive features of online memorials for youth suicides, amid concerns about glorification, we compared public Facebook memorials for suicides and road traffic accident deaths, using Linguistic Inquiry and Word Count software. People who posted on memorial sites wrote at greater length about suicides, using longer words and more quotation marks. Words suggesting causation and achievement were more prevalent in suicide memorials. Thematic content for the two types of death was more similar than different. Suicide memorial posts had more tentative words, non-fluencies, and question marks, suggesting that people were struggling to make sense of these deaths.

In recent years, there has been a considerable concern about the possible impact of social media communication on sustaining clusters of suicidal behavior in young people, with particular concern being raised about the possible glorifying effect of RIP pages set up for the deceased (Luce, 2016; Robertson, Skegg, Poore, Williams & Taylor, 2012). There is little or no research evidence to support or challenge this concern about the role of social media in memorializing. We do not know whether this is a moral panic or whether suicide memorials are indeed uniquely problematic. Little is known about the use of social media following a young person's death and it may be that young people's social media communication following a peer's suicide is not any different from that which follows other kinds of sudden death. Given this lack of evidence, there is a need for a dedicated study of the issue.

Sites of remembrance, or "deathscapes", offer spaces where death can be assigned meaning for both the deceased person and the bereaved person through the practices of grief and the rituals of mourning (Maddrell & Sidaway, 2010). Whilst there may be continuities with traditional memorialization strategies, online practices are notable in their overtly public and interactive nature (Forman, Kern, & Gil-Egui, 2012; Refslund Christensen & Gotved, 2015), indicating a need to attend closely to how the bereaved person, from immediate family members to remote cultural bystanders, communicate death. Online memorials should be understood as new sites of public mourning, rather than as disruptions of traditional mourning practices (Brubaker, Hayes & Dourish, 2013). Narratives around suicide are often imbued with strong moral judgements at both the individual and societal level (Owens, Lambert, Lloyd, & Donovan, 2008). Thus, beyond an exploration of the content of online bereavement displays, it is important to consider how communications are mediated by the discourses surrounding the various means of dying.

A wealth of research has explored the motivations for online memorialization and the experiences of taking part in such activities (Bailey, Bell & Kennedy, 2015; Carroll & Landry, 2010; Chapple & Ziebland, 2011; Leonard & Toller, 2012). In the immediate aftermath of a death, social media platforms may serve as a vital communication tool. Family members may be spared some emotional anguish by not having to repeatedly relay events and can avoid having to rank or remember the deceased person's relationships in terms of their relative importance in receiving the news (Chapple & Ziebland, 2011). Immediate memorial sites can also afford the opportunity to share grief (Carroll & Landry, 2010), particularly for those who may be geographically removed from the spontaneously erected shines or other mourning rituals that

take place at the site of death (Carroll & Landry, 2010; Forman et al., 2012).

Besides news dissemination and the sharing of communal grief, online memorials can also be used to preserve the memory of the deceased person and to promote continuing bonds between the living and the dead (Rossetto, Lannutti, & Strauman, 2015). As Forman et al. (2012) suggest, online displays of grief may become more an issue of keeping hold rather than letting go, with the epitaph of "rest in peace" effectively becoming "remain in perpetuity". The effect of social media use around mourning and bereavement has been to de-sequester death, dying, and mourning, since it brings death and the deceased person back into everyday life (Walter, Hourizi, Moncur, & Pitsillides, 2012). Communication with the deceased person on Facebook pages, for example, is associated either with sense-making or with maintaining relational continuity with the deceased person (DeGroot, 2012). Young people, in particular, use online memorials as a space in which to talk directly to the deceased person, whether for the purpose of reminiscing about shared experiences, updating about new developments or discussing grief and emotion (Williams & Merten, 2009). Indeed, friends, who are habitually marginalized in traditional bereavement rituals, may find a voice in these spaces (Carroll & Landry, 2010; Doka 1989). The online community continue their bonds with the individual by authoring their ongoing biography and managing their digital lives (Bailey et al., 2015; Finlay & Krueger, 2011; Leonard & Toller, 2012). Although it is debated whether continued bonds support the bereaved in their adjustment (Klass, 2006; Klass, Silverman, & Nickman, 1996), these commemorative rituals may make possible their gradual reintegration into everyday social activities (Refslund Christensen, & Gotved, 2015).

However, it should not be assumed that such uses of online spaces are universally cathartic. The possibility that multiple authors will contribute to the biography of the deceased person can cause confusion for survivors who are confronted with multiple versions of that person"s identity – versions that might have stayed separate before the advent of online memorialization (Bell, Bailey, & Kennedy, 2015). Further, online memorials are subjected to lurking surveillance, where posts are monitored for both the volume and emotional content of their contributions (Carroll & Landry, 2010). Although this surveillance can allow individuals to situate their own grief and authenticate such feelings of loss, it can highlight the lack of genuineness of many postings. Family members of the deceased person may observe extensive outpourings of emotions as being inauthentic (Bailey et al., 2015). Equally, interactive online memorials are often characterized by "contextual collapse", whereby contributors are required to conduct a social performance for a diverse audience and the vernacular or visual displays may not be deemed appropriate by all in the community (Marwick & Boyd, 2011; Marwick & Ellison, 2012). For example, a young person's parents may be dissatisfied by the casual, truncated and seemingly disrespectful postings of a friend. Distress may also be amplified when strangers make postings, as part of the phenomena of "grief tourism" (DeGroot, 2014; Klastrup, 2015). Indeed, tensions may arise as members of the immediate social circle find communication from more distal community members intrusive. Inherent to these feelings can be the loss of control over the deceased person's biography and identity (Klastrup, 2015).

Deaths by suicide add a further complex dynamic to the expression and experiences of bereavement online, as they often entail traumatic and disenfranchized grief (Doka, 1989; Jacobs & Prigerson, 2000). Although at a societal level discussions of death continue to be a taboo (Lenoard & Toller, 2012), suicide is often further silenced due to feelings of stigma, guilt, and anger (Bailey et al., 2015; Jordan, 2001; Leonard & Toller, 2012). Grief reactions following a suicide may fit four distinct categories: universal grief reactions of sadness and yearning; shock and unreality common after sudden and unexpected deaths; trauma reactions common after violent death; and suicide-specific reactions of anger at abandonment by the deceased person (Jordan & McIntosh, 2011). Online memorials can offer space to articulate this disenfranchized and complex grief, with evidence suggesting that the content of suicide memorials often corresponds to Jordan and McIntosh's framework (Krysinska & Andriessen, 2015), whilst also allowing the bereaved person to explore reasons for its occurrence (Leonard & Toller, 2012).

Yet as such discussions and connections play out, moral debates emerge, with the memorial serving as fertile ground for those with malicious intent (Forman et al., 2012). Indeed, in an exploration of the responses to individuals who die by suicide (Leonard & Toller, 2012) anonymity afforded the freedom to offer unsympathetic judgment. One study observed the use of jokes and irony when speaking about death, combined with the censure of the individual, their families, friends, and society as a whole. Such negative

evaluations can further disenfranchize the grief of the bereaved person. Alternatively, the memorial may provide a space to challenge the shame and guilt assigned to those who have lost a loved one to suicide (Chapple & Ziebland, 2011). Within this consideration is also the risk of how debates, discussions, and descriptions of suicide may encourage copying (Bailey et al., 2015).

Although this extensive qualitative work offers important insights into how online memorials serve as interactive repositories through which the bereaved person can communicate both with the deceased person and each other, there remains limited systematic (and quantitative) mapping of the structure and content of this communication (Carroll & Landry, 2010). Most work has focused on the identity of a post's target audience (Forman et al., 2012). As it is widely assumed that different modes of death inspire different rituals of grief, it is important to compare communication across the different circumstances of dying. Specifically, there may be utility in comparing "spectacular deaths" (Klastrup, 2015), those where the circumstances may be of interest or debatable and may even garner media attention. Understanding these differences can offer insights into the moral and cultural discourses pertaining to various means of dying, whilst also illuminating societal understandings of the remedies that should be promoted in their future prevention (Klastrup, 2015).

A rare example of a quantitative study that compares memorials for suicide with those for other kinds of death (Lester, 2012) used linguistic word count software and had a comparison group of memorials for any other kind of death. It found that suicide memorial postings had longer sentences and words; more words related to death, sadness, or anger, or referring to work, occupation and school; and, fewer references to the deceased person or the self, words suggesting insight and understanding, or words related to religion. We use a similar method but we focus on the youngest age group and compare with memorials for other sudden and unexpected deaths. Our research question is this: are there distinctive features of the language used in online memorials for suicides in young people, when compared with other sudden deaths?

Method

We identified reported deaths in young people aged 11–18 by suicide or road traffic accident (RTA) in the Nexis UK newspaper database for the 6-month period

from 1 February 2014 to 1 August 2014. The rationale for focusing on reported deaths, rather than all deaths, was two-fold. Firstly, online memorials are likely to attract a greater number of postings if the death was reported in the news rather than only by word of mouth, allowing for larger samples of postings that would be amenable to the quantitative comparison. Secondly, this decision was pragmatic insofar as generating a list of all deaths prospectively would be difficult to achieve because it would rely on coroner's inquests having been concluded and these often take place many months after the death. Actually gaining access to names of all these deceased people would either rely on highly sensitive data disclosure by the authorities responsible for mortality statistics or the cooperation of all coroners in the country, which is unrealistic. A prospective study was important, as this data collection was linked to other studies of the use of social media in connection with suicide (see Burnap, Colombo, Amery, Hodorog & Scourfield, 2017; Scourfield et al., 2018).

The sample consists of only those deaths reported in newspapers and it includes 23 suicide and 29 RTA deaths that happened within this 6-month period. Nexis UK is a comprehensive newspaper database, updated daily, that provides full-text access. For this collection, we used the UK regional newspaper database. We assumed that any suicide reported in national newspapers would also be reported in regional papers, but not vice versa, insofar as a death considered newsworthy at a national level could be assumed to also be newsworthy in the region where the death took place or the deceased individual lived. Nexis allows users to conduct searches using up to three sets of keywords, so we used the following words and phrases, with the asterisk denoting any letter:

- Suicid**, hanged, overdose, and the combination of the words took or taken and own life, to monitor deaths by suicide.
- Killed or died and teen**** or youth, to monitor RTA deaths.

We manually inspected the retrieved articles to filter the articles relevant to our investigation (actual suicide and RTA cases happening in England and within the age range 11–18).

We accessed public online memorials via facebook.com, which allows users to set up open RIP pages and "groups", which can be either publicly open or private and closed. We located open RIP pages and

groups through searching for the name of the deceased person, which we identified from the database of teenage deaths described above. We did manual checks to ensure the RIP pages related to the same deceased individuals, which could be verified by the date when the RIP page was set up. We did not attempt to access any closed groups. For each deceased young person, we collected memorial postings via Facebook's API (Application Programing Interface) for a fixed period of two months after the reported date of death. For some of the deceased young people, there were several memorial pages. In these cases, we used the one page or group with the greatest number of posts for data collection, given that we were making a quantitative comparison between the two types of death and maximizing sample size could be advantageous. We included both initial posts and comments on these posts in the dataset.

Analyses

We used the software Linguistic Inquiry and Word Count (LIWC) to compare the linguistic features in the postings. LIWC is a text analysis software program widely used to calculate the degree to which people use different categories of words across general texts, such as emails, speeches, poems, or transcribed daily speech. It deals with individual words; a strategy that has its limitations but is a feasible way to analyze a sample of individual texts that is too large for manual content analysis. When presented with text content, the software returns the degree in the percentage of terms related to positive or negative emotions, self-references, causal words, and further language dimensions (Pennebaker, Francis & Booth, 2001; Tausczik & Pennebaker, 2010).

LIWC has been used by several research teams for the study of the language used by suicidal individuals (e.g. Barnes, Lawal-Solarin, & Lester, 2007; Gunn & Lester, 2012; Li, Chau, Yip, & Wong, 2014). Also, Rosen, Kreiner, and Levi-Belz (2019) used LIWC to analyze public responses to news reports of celebrity suicides. Unlike previous research that applied LIWC to the study of suicide memorial sites (Lester, 2012), we focused specifically on suicides in children and young people (as opposed to all age groups) and we compared these memorials with those for another kind of sudden and unexpected death, RTA. This comparison allows us to control for any difference between memorial text that might be explained by the unexpected nature of the death, as opposed to death following a lengthy period of serious illness, which

although still having a powerful emotional impact, would not be wholly unanticipated. Thus, the selected comparison should allow for the identification of suicide-specific reactions (Jordan & McIntosh, 2011).

LIWC includes four general descriptor categories (e.g. total word count), 22 standard linguistic dimensions (e.g. past tense, uses of first-person singular), 32 word categories that reference psychological constructs (e.g. affective, social, and cognition processes), 7 personal concern categories (e.g. achievement, money), 3 paralinguistic dimensions (assents, fillers, non-fluencies), and 12 punctuation categories (e.g. question marks). As in other studies (e.g. Newman et al., 2003), we reduced the list of LIWC features. Firstly, we removed any linguistic categories containing words that were frequently used in one type of memorial and clearly associated with that type of death; these included leisure (reference to driving) and motion (reference to car). Secondly, we used a theoretical rationale, with the list of LIWC features scrutinized to select only those which might plausibly be hypothesized as varying between the two types of death. This included basic descriptive comparisons such as word count, word length, use of fillers and non-fluencies; some standard linguistic features such as tense, person, and punctuation and social and psychological variables that could plausibly fit with distinctive features of suicides, based on research in the field. This latter category included a reference to social connections (e.g. friends, family) and selected affective, cognitive and perceptual processes, such as anger, sadness, insight, and certainty. It also included personal concerns, e.g. about money, home, and achievement. The selection process resulted in 39 LIWC categories being used.

We used multivariable logistic regression models to detect those features disproportionately found in memorial postings from one type of death. We converted the LIWC results from percentages to frequency counts, i.e. the number of occurrences within each test post.

Results

Of the 23 deaths by suicide, 12 (52.1%) presented at least one public Facebook RIP page or group and 18 (78.3%) had memorial pages with restricted private access. There were in total 20 public memorial pages, some of which were multiple sites for the same deaths. Taking for each case only the page with the largest number of postings, the total number of collected memorial messages for suicides, including

Table 1. LIWC categories in suicide and RTA memorial postings[a].

LIWC category	Examples	Suicides (n = 3840)		RTAs (n = 5336)		OR[b]	z	p
		Mean	SD	Mean	SD			
General descriptor								
Word count		32.28	38.22	24.86	37.37			
Words per sentence		22.51	25.98	18.26	24.56	1.00	2.54	0.011
Words >6 letters		4.82	7.48	2.87	4.65	1.12	12.85	<0.001
Linguistic								
First person singular	I, me, mine	1.29	2.59	1.02	2.64	0.98	−1.75	0.080
First person plural	We, us, our	0.34	1.02	0.25	0.86	1.01	0.52	0.606
Second person	You, your	1.54	2.53	1.31	2.86	0.97	−2.30	0.021
Past tense	Went, ran, had	1.23	2.41	0.99	2.17	0.96	−2.66	0.008
Present tense	Is, does, hear	2.38	3.38	1.92	3.45	0.97	−2.49	0.013
Future tense	Will, gonna	0.51	1.08	0.31	0.89	1.13	4.11	<0.001
Swear words	Damn, piss, fuck	0.02	0.18	0.02	0.18	0.92	−0.66	0.509
Psychological								
Social	Mate, talk, they, child	4.48	6.05	3.67	5.97	1.01	0.66	0.509
– Family	Daughter, husband, aunt	0.36	0.83	0.36	0.91	0.94	−1.69	0.091
– Friends	Buddy, friend, neighbor	0.25	0.61	0.26	0.75	0.95	−1.49	0.135
– Humans	Adult, baby, boy	0.34	0.78	0.29	0.82	0.97	−0.91	0.363
Affective	Happy, cried, abandon	3.14	3.93	2.51	3.63	0.86	−0.35	0.729
– Positive emotion	Love, nice, sweet	2.39	3.35	1.86	2.84	1.16	0.34	0.732
– Negative emotion	Hurt, ugly, nasty	0.74	1.33	0.65	1.40	1.16	0.33	0.738
Anxiety	Worried, fearful, nervous	0.06	0.31	0.04	0.25	1.12	1.16	0.247
Anger	Hate, kill, annoyed	0.08	0.39	0.06	0.34	0.87	−1.51	0.131
Sadness	Crying, grief, sad	0.47	0.94	0.44	1.08	0.96	−0.62	0.537
Cognitive	Cause, know, ought	5.16	7.17	3.92	6.87	0.95	−3.77	<0.001
– Insight	Think, know, consider	0.78	1.38	0.64	1.28	1.03	1.01	0.313
– Causation	Because, effect, hence	0.50	1.27	0.21	0.83	1.37	9.15	<0.001
– Tentative	Maybe, perhaps, guess	0.63	1.36	0.40	1.08	1.11	3.79	<0.001
– Certainty	Always, never	0.70	1.35	0.58	1.27	1.02	0.75	0.451
Perceptual:	Observing, heard, feeling	0.86	1.59	0.79	1.59	0.88	−5.55	<0.001
– Feel	Feels, touch	0.24	0.63	0.21	0.55	1.14	2.68	0.007
Personal concerns								
Work	Job, class, boss	0.17	0.72	0.10	0.58	0.97	−0.69	0.492
Achievement	Earn, hero, win	0.57	1.35	0.27	0.92	1.33	9.61	<0.001
Home	Apartment, kitchen, family	0.27	0.62	0.27	0.62	0.89	−2.92	0.004
Money	Audit, cash, owe	0.15	0.70	0.07	0.38	1.27	4.98	<0.001
Religion	Altar, church, mosque	0.33	0.88	0.29	0.80	1.01	0.33	0.742
Death	Bury, coffin, kill	0.08	0.41	0.05	0.33	1.04	0.53	0.596
Paralinguistic								
Assent	Agree, OK, yes	0.10	0.43	0.09	0.52	0.92	−1.65	0.098
Nonfluencies	Er, hm, ummm	0.08	0.38	0.05	0.24	1.26	3.05	0.002
Fillers	Blah, I mean, you know	0.05	0.26	0.04	0.24	1.01	0.14	0.888
Punctuation								
Question mark		0.09	0.64	0.06	0.35	1.16	2.61	0.009
Exclamation mark		0.40	1.60	0.36	1.44	0.99	−0.92	0.360
Quotation mark		0.10	1.04	0.01	0.15	1.57	4.81	<0.001

[a]One multi-variate logistic regression model for each LIWC category (six in total), each controlling for word count.
[b]Odds ratios for suicide memorials vs. RTAs.

comments, was 3843 (M = 320 posts per case) posted by 1491 distinct users (M = 124 per case). Of the 12 cases with public RIP pages, eight were aged 16 or above and six were male, six female.

Of the 29 RTA-related deaths, 14 (48.3%) had at least one public Facebook RIP page and 17 (58.6%) had restricted private access pages. There were in total 36 public pages, including multiples. Taking only the largest group for each case, in terms of the total number of postings, the number of collected memorial messages for RTAs, including comments, was 5337. The posts per case (M = 381) were higher than that for suicide and these were posted by 2120 distinct users (M = 151 per case; again higher than for suicides). Of the 14 cases with public RIP pages, nine

were aged 16 or above and seven were male, seven female. The final sample of memorial sites was, therefore, 12 for suicides and 14 for RTAs.

Table 1 presents descriptive statistics for the selected LIWC variables, by type of death. It can be seen that the word count is 30% higher on average for the suicide sites. This may be the main reason why many of the linguistic features in LIWC are, therefore, more numerous in the suicide memorials. Table 1 also returns the results of multivariate logistic regression models performed for each main LIWC category, using the whole collection of Facebook memorial messages and with the type of death (suicide or RTA) as the binary dependent variable. Each model controlled for word count.

Controlling for word count, the features significantly more present in suicide posts were words associated with causation (OR = 1.37), achievement (OR 1.33), and money (OR 1.27); the use of non-fluencies (OR 1.26) and question marks (OR 1.16); words associated with feeling (OR 1.14); use of the future tense (OR 1.13); words with more than six letters (OR 1.12); tentative words (OR 1.11); and number of words per sentence (OR 1.0034). Controlling for word count, the features significantly more present in RTA posts were perceptual processes (OR 0.88); words connected with home (OR 0.89); words suggesting assent (OR 0.92); words associated with family (OR 0.94) or cognitive processes (OR 0.95); use of the past tense (OR 0.96), present tense (OR 0.97), or second person (OR 0.97).

Linguistic features not found to be significantly more prevalent in either type of memorial were use of the first person; swear words; words suggesting social processes (including family, friends, family, and humans); positive and negative emotion (including anxiety, anger, and sadness); words suggesting insight and certainty; words connected with work, religion, and death; and, indicators of assent, fillers, and exclamation marks.

Discussion

Based only on the largest site for each case, memorials for deaths of teenagers by RTA had more posts per case and postings by more individuals, but memorials for deaths by suicide were longer and more elaborate. The use of longer and more elaborate postings could be explained by it being more socially challenging to comment on a death someone has chosen than on an accidental death, with suicide bringing more moral complexity, including the possibility of blame being placed on living individuals, as well as greater stigma (Owens et al., 2008; Sudak, Maxim, & Carpenter, 2008).

We could speculate that this difference in a number of posts might also indicate that this small sample of suicidal young people have more restricted social networks than the young people who have died in traffic accidents. There is some evidence that social isolation is a risk factor for youth suicide (Cash & Bridge, 2009). This would make sense if those who have died through suicide were less socially engaged individuals, perhaps because of psychosocial difficulties they were experiencing. However, no other evidence is available to the research team about the deceased young people so we cannot move beyond speculation. Within

individual postings, it is clear that suicides attract more intensive attention. As well as a mean word count which is 30% higher, the suicide postings had a higher number of words per sentence and more words with more than six letters, suggesting more elaborate writing. The clearly disproportionate use of quotation marks (inverted commas) for suicide cases suggests those writing postings may have been looking for quotations, quite possibly from literature or from songs, to make sense of the death.

Controlling for word count, there are some differences between the different types of death in the language used, but also a lot of common ground. There were more linguistic features that failed to reach the 0.05 level of a significant difference than there were features that were disproportionately found for one type of death. Neither positive emotion nor negative emotion was discriminative between the two types of death, a finding that might possibly be interpreted as encouraging to those who are concerned about the potential "contagion" effect of suicide memorials. However, caution is needed in interpreting this finding as there is still plenty of emotion present, as can be seen in the higher mean score for affective processes in suicide memorials.

Causation seems to have been a preoccupation of the suicide memorials. This is not surprising, given that whilst the cause of an RTA death is usually known, the explanation for suicide is often the subject of intense speculation (Owens et al., 2008). In keeping with the idea that people posting memorial statements are struggling for an explanation or at a loss to know how to respond to an act which may not be easily understandable, non-fluencies, question marks, and tentative words were all more prevalent in the suicide memorials.

The higher prevalence of achievement words in the suicide memorials might potentially be worrying for prevention if there were to be a cultural association of completed suicide with achievement. However, it may be that words such as "succeeded", "failed" and "tried" explain the finding and although the use of "success" for suicide has been criticized by some (e.g. Cutcliffe & Ball, 2009), the use of these words need not always be value-laden. The high prevalence of money-related words seems to be linked to fundraising, which may be more a feature of suicides, perhaps because there are more obvious prevention organizations when compared with RTAs.

Comparison with the earlier study by Lester (2012) shows similarity in the greater use of longer words and longer sentences and fewer uses of the second

person pronoun in the suicide memorials. However, features that Lester found to be more prevalent in suicide memorials and were also tested in this study but not found to be significant were words associated with anger, sadness, work, death, and religion. Similarly, words indicating self (first-person pronouns) and insight were significantly less prevalent in suicide memorials in Lester's study but there was no significant difference in our study. LIWC concepts tested by Lester but not in our study were words associated with work and school. The differences between Lester's results and ours could in part to do with the analytic approach – we conducted multivariate logistic regressions and controlled for word count whereas Lester conducted *t*-tests. However, it is likely that our focus on youth suicides, as opposed to all ages, explains some of the difference between the studies. Also, we controlled for the unexpected nature of a death by suicide by only comparing with RTAs rather than all deaths. It is plausible that greater expression of anger, sadness, death, and religion might have been in Lester's study in part to do with the shock and unreality common after sudden and unexpected death (Jordan & McIntosh, 2011), rather than suicide per se, whereas that difference was not found in our study, where the unexpected nature of the death was not unique to the suicide memorials.

The study, of course, has limitations. Although they generated thousands of postings, the samples of deaths were small. We identified the sample from news reports, which may not be wholly representative of all such deaths. News reports do not always explicitly state suicide as a cause of death and indeed RTAs were more likely to be reported during the study period (Scourfield et al., 2018). We may have found a different picture if we had used a different approach to selecting sites, e.g. all public sites for an individual rather than only the site with the largest number of postings. In some ways, LIWC analysis begs as many questions as it answers them because we do not know which specific words in the dataset most affected the coefficients. The LIWC approach has an inevitable limitation in its decontextualizing of individual words. A broader view of content in context, as provided by some of the studies reviewed in the background section of this paper, is, of course, important, but this is not feasible with a sample of more than 9000 postings. It is worth mentioning that, for a few cases, publicly accessible memorial pages exist outside Facebook, for example, dedicated websites such as "muchloved.com" and "justgiving.com"). We did not include these sites. We also did not include private Facebook pages, for obvious legal and ethical reasons.

There is a general need in "postvention" suicide research for more comparison with other kinds of death, so we can establish to what extent suicide is unique. Questions remain about suicide memorials. For example, do young people react in a distinctive way to the material on suicide sites, even if it is not greatly different from material relating to other sudden deaths? Research such as ours, using quantification of linguistic categories, needs to be supplemented with qualitative research on random samples of memorial postings. In the current cultural context, it is inevitable that people will want to comment on young deaths via social media. Facebook and similar pages are a very useful outlet for the expression of loss. We should not pathologize these pages but should seek to better understand them, applying our learning to developing effective suicide prevention and postvention strategies.

References

Bailey, L., Bell, J., & Kennedy, D. (2015). Continuing social presence of the dead: Exploring suicide bereavement through online memorialisation. *New Review of Hypermedia and Multimedia*, *21*, 72–86. doi:10.1080/13614568.2014.983554

Barnes, D. H., Lawal-Solarin, F. W., & Lester, D. (2007). Letters from a suicide. *Death Studies*, *31*, 671–678. doi:10.1080/07481180701405212

Bell, J., Bailey, L., & Kennedy, D. (2015). 'We do it to keep him alive': Bereaved individuals' experiences of online suicide memorials and continuing bonds. *Mortality*, *20*, 375–389. doi:10.1080/13576275.2015.1083693

Brubaker, J. R., Hayes, G. R., & Dourish, P. (2013). Beyond the grave: Facebook as a site for the expansion of death and mourning. *The Information Society*, *29*, 152–163. doi:10.1080/01972243.2013.777300

Burnap, P., Colombo, G., Amery, R., Hodorog, A., & Scourfield, J. (2017). Multi-class machine classification of suicide-related communication on Twitter. *Online Social Networks and Media*, *2*, 32–44. doi:10.1016/j.osnem.2017.08.001

Carroll, B., & Landry, K. (2010). Logging on and letting out: using online social networks to grieve and to mourn. *Bulletin of Science, Technology and Society*, 30, 341–349. doi:10.1177/0270467610380006

Cash, S. J., & Bridge, J. A. (2009). Epidemiology of youth suicide and suicidal behaviour. *Current Opinion in Pediatrics*, 21, 613–619. doi:10.1097/MOP.0b013e32833063e1

Chapple, A., & Ziebland, S. (2011). How the Internet is changing the experience of bereavement by suicide: A qualitative study in the UK. *Health: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*, 15, 173–187. doi:10.1177/1363459309360792

Cutcliffe, J., & Ball, J. B. (2009). Suicide survivors and the suicidology academe. *Crisis*, 30, 208–214. doi:10.1027/0227-5910.30.4.208

DeGroot, J. M. (2012). Maintaining relational continuity with the deceased on Facebook. *Omega*, 65, 195–212. doi:10.219/OM.65.3.c

DeGroot, J. (2014). 'For whom the bell tolls': Emotional rubbernecking in Facebook memorial groups. *Death Studies*, 38, 79–84. doi:10.1080/07481187.2012.725450

Doka, K. (1989). *Disenfranchised grief: Recognising hidden human sorrow*. Lexington, KY: Lexington Books.

Finlay, C. J., & Krueger, G. (2011). A space for mothers: Grief as identity construction on memorial websites created by SIDS parents. *OMEGA – Journal of Death and Dying*, 63, 21–44. doi:10.2190/OM.63.1.b

Forman, A. E., Kern, R., & Gil-Egui, G. (2012). Death and mourning as sources of community participation in online social networks: R.I.P pages in Facebook. *First Monday*, 17. Available at: http://firstmonday.org/ojs/index.php/fm/article/view/3935/3288

Gunn, J. F., & Lester, D. (2012). Twitter postings and suicide: An analysis of the postings of a fatal suicide in the 24 hours prior to death. *Suicidologi*, 17, 28–30. doi:10.5617/suicidologi.2173

Jacobs, S., & Prigerson, H. (2000). Psychotherapy of traumatic grief: a review of evidence for psychotherapeutic treatments. *Death Studies*, 24, 479–495. doi:10.1080/07481180050121462

Jordan, J. R. (2001). Is suicide bereavement different? A reassessment of the literature. *Suicide and Life-Threatening Behavior*, 31, 91–102. doi:10.1521/suli.31.1.91.21310

Jordan, J. R., & McIntosh, J. L. (2011). Is suicide bereavement different? A framework for rethinking the question. In J. R. Jordan and R. L. McIntosh, *Grief after suicide: Understanding the consequences and caring for the survivors*. NY: Routledge.

Klass, D. (2006). Continuing conversation about continuing bonds. *Death Studies*, 20, 843–858. doi:10.1080/07481180600886959

Klass, D., Silverman, P. R. & Nickman, S. L. (Eds). (1996). *Continuing bonds: New understandings of grief*. Washington, DC: Taylor and Francis.

Klastrup, L. (2015). "I didn't know her, but … ": parasocial mourning of mediated deaths on Facebook RIP pages. *New Review of Hypermedia and Multimedia*, 21, 146–164. doi:10.1080/13614568.2014.983564

Krysinska, K., & Andriessen, K. (2015). Online Memorialization and Grief After Suicide: An Analysis of Suicide Memorials on the Internet. *OMEGA – Journal of Death and Dying*, 71, 19–47. doi:10.1177/0030222814568276

Leonard, L. G., & Toller, P. W. (2012). Speaking ill of the dead: Anonymity and communication about suicide on MyDeathSapce.com. *Communication Faculty Publications*, 73, 387–404. doi:10.1080/10510974.2011.629274

Lester, D. (2012). Bereavement after suicide: A study of memorials on the Internet. *OMEGA – Journal of Death and Dying*, 65, 189–194. doi:10.2190/OM.65.3.b

Li, T. M. H., Chau, M., Yip, P. S. F., & Wong, P. W. C. (2014). Temporal and computerized psycholinguistic analysis of the blog of a Chinese adolescent suicide. *Crisis*, 35, 168–175. doi:10.1027/0227-5910/a000248

Luce, A. (2016). *The bridgend suicides*. London: Palgrave Macmillan. doi:10.1057/978-1-137-39293-0

Maddrell, A. & Sidaway, J.D. (Eds.) (2010). *Deathscapes: Spaces for death, dying, mourning and remembrance*. Burlington, VT: Ashgate Publishing Company.

Marwick, A., & Boyd, D. (2011). I tweet honestly, I tweet passionately: Twitter users, context collapse and the imagined audience. *New Media and Society*, 13, 114–133. doi:10.1177/1461444810365313

Marwick, A., & Ellison, N. (2012). "There isn't Wifi in heaven!" Negotiating visibility on Facebook memorial pages. *Journal of Broadcasting and Electronic Media*, 56, 378–400. doi:10.1080/08838151.2012.705197

Newman, M. L., Pennebaker, J. W., Berry, D. S., & Richards, J. M. (2003). Lying Words: Predicting Deception from Linguistic Styles. *Personality and Social Psychology Bulletin*, 29(5), 665–675. doi:10.1177/0146167203029005010

Owens, C., Lambert, H., Lloyd, K., & Donovan, J., (2008). Tales of biographical disintegration: how parents make sense of their sons' suicides. *Sociology of Health and Illness*, 30, 237–254. doi:10.1111/j.1467-9566.2007.01034.x

Pennebaker, J. W., Francis, M. E., & Booth, R. J. (2001). Linguistic inquiry and word count: LIWC 2001. *Mahway: Lawrence Erlbaum Associates*, 1–22.

Refslund Christensen, D., & Gotved, S. (2015). Online memorial culture: An introduction. *New Review of Hypermedia and Multimedia*, 21, 1–9. doi:10.1080/13614568.2015.988455

Robertson, L., Skegg, K., Poore, M., Williams, S., & Taylor, B. (2012). An adolescent suicide cluster and the possible role of electronic communication technology. *Crisis*, 3, 239–245. doi:10.1027/0227-5910/a000140

Rossetto, K. R., Lannutti, P. J., & Strauman, E. C. (2015). Death on Facebook: Examining the roles of social media communication for the bereaved. *Journal of Social and Personal Relationships*, 32, 974–994. doi:10.1177/0265407514555272

Rosen, G., Kreiner, H., & Levi-Belz, Y. (2019). Public response to suicide news reports as reflected in computerized text analysis of online reader comments. *Archives of Suicide Research*, 1. Published online ahead of print. doi:10.1080/13811118.2018.1563578

Scourfield, J., Colombo, G., Burnap, P., Evans, R., Jacob, N., Williams, M., & Caul, S. (2018). The number and characteristics of newspaper and Twitter reports on suicides and road traffic deaths in young people. *Archives of Suicide Research*, 1. Published online ahead of print. doi:10.1080/13811118.2018.1479321

Sudak, H., Maxim, K., & Carpenter, M. (2008). Suicide and stigma: A review of the literature and personal reflections. *Academic Psychiatry*, *32*, 136–142. doi:10.1176/appi.ap.32.2.136

Tausczik, Y. R., & Pennebaker, J. W. (2010). The psychological meaning of words: LIWC and computerized text analysis methods. *Journal of Language and Social Psychology*, *29*, 24–54. doi:10.1177/0261927X09351676

Walter, T., Hourizi, R., Moncur, W., & Pitsillides, S. (2012). Does the Internet change how we die and mourn? Overview and analysis. *OMEGA – Journal of Death and Dying*, *64*, 275–302. doi:10.2190/OM.64.4.a

Williams, A. L., & Merten, M. J. (2009). Adolescents' online social networking following the death of a peer. *Journal of Adolescent Research*, *24*, 67–90. doi:10.1177/0743558408328440