Development of the PRINTQUAL-Web Tool for Assessing the Quality of Online News Reporting of Suicide

Adaptation of the PRINTQUAL Tool for Newspaper Reporting

Ruby Rose Jarvis[1], Agatha Anet Alves[2], Kangning Zheng[1], Monica Hawley[3], Amanada Marchant[4], Keith Hawton[5], Ann John[4], and Alexandra Pitman[1,6]

[1]Division of Psychiatry, University College London, London, UK
[2]Division of Psychology and Language Sciences, University College London, London, UK
[3]Media Advisory Team, Samaritans, Surrey, Ewell, UK
[4]Public Health and Psychiatry, Swansea University Medical School, Swansea University, Swansea, UK
[5]Centre for Suicide Research, Department of Psychiatry, University of Oxford, Oxford, UK
[6]Veteran's Mental Health Service, North London NHS Foundation Trust, London, UK

Abstract: *Background:* Suicide prevention strategies internationally recommend promoting responsible media reporting of suicide to reduce negative impacts on population suicides. Existing tools to assess the quality of suicide reporting do not capture specific harmful features of the online setting. We aimed to adapt PRINTQUAL, a tool for assessing newspaper reporting of suicide, for online news reports. *Methods:* We identified all online news reports about the 2020 suicide of a British female television celebrity over a 14-month period and used content analysis to identify features of poor-quality and good-quality reporting based on media guidelines on suicide reporting. We gained expert consensus on items to include negative/poor-quality and positive/good-quality subscales for the new tool: PRINTQUAL-web. Weightings were calculated using an expert judgement ranking exercise. *Results:* Content analysis of 342 online articles published from 15/02/20 to 05/04/21 identified 18 items for a proposed negative/poor-quality subscale and four items for a positive/good-quality subscale, gaining consensus on inclusion/exclusion and weightings, and rescaling scores for easier interpretation. *Limitations*: PRINTQUAL-web does not account for article prominence or quantitative reach (e.g., views or circulation) and relies on a binary agree/disagree rating which may not capture nuance. *Conclusions:* The PRINTQUAL-web and PRINTQUAL tools assess the quality of online and print reporting of suicide, respectively, with rescaling permitting score comparisons across different corpora of reporting.

Keywords: suicide, journalism, celebrity, media, PRINTQUAL

The promotion of responsible reporting of suicide is a component of most national suicide prevention strategies (Schlichthorst et al., 2022). This forms part of efforts to prevent global suicides, estimated at over 720,000 deaths annually (World Health Organization, 2024), reflecting evidence demonstrating an association between sensationalist reporting of suicide and increased population suicide rates, often referred to as the Werther Effect (Niederkrotenthaler et al., 2020; Phillips, 1974). Where the suicide method used by a celebrity is reported, suicide deaths by the same method are also significantly higher (Niederkrotenthaler et al., 2020). Effects seem most pronounced in people of the same age and/or gender as the deceased (Sisask & Värnik, 2012) and in newspaper relative to television reporting (Hawton & Williams, 2013; Pirkis et al., 2010). Conversely, media reporting promoting paradigms of positive coping during adversity has a protective effect on suicide rates, described as the Papageno Effect (Niederkrotenthaler et al., 2010).

Media guidelines have been developed in the United Kingdom (IPSO, 2023; Samaritans, 2020b), Austria (Niederkrotenthaler & Sonneck, 2007), the United States (Reporting on Suicide, 2024), India (Vijayakumar, 2019), Australia (Mindframe, 2020), and other countries, some of which were codeveloped with journalists (Pirkis et al., 2010; Pirkis et al., 2018). The World Health Organization also recently revised its own guidelines (World Health Organization/IASP, 2023). Generally, these guidelines

recommend sensitive reporting of suicide, rather than censorship (Marzano et al., 2018) caution against sensationalizing suicide or explicitly detailing method, location or images, and advise against use of specific language when describing suicide. Evaluations of media guidelines suggest they can influence reporting style positively and prevent the induction of population suicides (Bohanna et al., 2012).

Since media guidelines were first developed for newspaper content, news consumption has shifted internationally from the print medium to online fora (Newman, 2023). Only 18% of adults in the United Kingdom and 16% in the United States (US) now consume news via print media, whilst 79% and 73%, respectively, consume news online, including via social media (Newman, 2023). The internet is now the most-used platform for news consumption in young people, used by 89% of UK 16- to 24-year-olds (Ofcom, 2021). Online stimuli are qualitatively different and potentially more harmful, providing more scope for photos, reels, and rapid edits. Interactive comments sections of online articles are unregulated and may expose the reader to triggering language. Online articles about suicide are often shared on social media sites or contain links to similar articles, expanding their reach (Utterson et al., 2017). As online content can be edited postpublication, initial breaches of guidelines may occur with impunity where they are erased. These features pose particular risks to young people, given evidence that online discussion forums about suicide can increase suicidality among young people (Dunlop et al., 2011), browsing of suicide-related content can expose them to suicide methods (Biddle et al., 2018), and social media attention on suicide is associated with increased suicide rates among young people (Sedgwick et al., 2019). Young people may therefore be more vulnerable to the harmful effects of irresponsible media reporting of suicide (Pirkis et al., 2010). The online world presents a potentially greater (and less regulated) threat to public health than print media, yet existing media guidelines lack specific advice needed to mitigate harmful effects of online news reporting or social media platforms (Hoops et al., 2023).

Only two validated tools have been developed for assessing the quality of media reporting on suicide: the PRINTQUAL in the United Kingdom (John et al., 2014) and the Tool for Evaluating Media Portrayals of Suicide (TEMPOS) in the United States (Sorensen et al., 2022). PRINTQUAL was developed for assessing print newspaper content, based on media guidelines developed in the United Kingdom by Samaritans, a national suicide prevention organization, and research evidence (John et al., 2014) and has been used internationally (Brandt Sørensen et al., 2019; John et al., 2017). However, it contains no items specific to online content. TEMPOS was developed using expert consensus and US reporting guidelines and has been used locally (Sorensen et al., 2022). However, its scoring method does not reflect variance across raters, limiting its use as a standalone tool, and items do not capture specific harmful features of the online setting. Other studies have used nonvalidated checklists or conventional lists to evaluate features of online news reporting (Kar et al., 2022; Utterson et al., 2017; Vijayakumar et al., 2021); however, these are not always based on expert consensus and all such checklists give equal weighting to all items. Given the clear need for a validated tool to quantify the quality of online news reporting of suicide, our aim was to adapt the PRINTQUAL (John et al., 2014) for online news reporting and enable direct comparison of scores across formats.

Methods

Design

We used mixed methods to develop, validate, and scale a revised version of the PRINTQUAL tool for online news reporting of suicide: the PRINTQUAL-web. First, using content analysis, we reviewed online reports of a British television celebrity's suicide to identify items for inclusion. Then, we used a consensus-building approach with academic and lived experience experts to determine item inclusion, exclusion, and weighting. We also rescaled both PRINTQUAL and PRINTQUAL-web tools to enable direct comparison of scores.

Dataset

We analyzed data gathered systematically by Samaritans' Media Advisory Service on the press coverage of a celebrity suicide. Samaritans have been monitoring news reporting of suicide by local and national press in the United Kingdom and Republic of Ireland since 2012, processing approximately 6,000 print and online articles annually (Fraser et al, 2017). All articles are provided by cuttings agencies, which monitor press coverage for suicide-related key words, supplemented by Google Alerts. The database does not currently include social media content due to issues of volume. All articles are classified by Samaritans by news outlet: broadsheet/tabloid/regional/other. We focussed on articles reporting on the suicide of Caroline Flack, a British television celebrity and entertainer, who died on February 15, 2020, aged 40, attracting substantial media attention in the print, online, and television media. Samaritans identified print and online articles reporting on her death published between February 15, 2020, and May 4, 2021,

Box 1. Original PRINTQUAL items for assessing the quality of newspaper print content (John et al., 2017)

Poor-quality scale items:

- Is the article on the front page?
- Is it the main headline on the front page?
- Is the method mentioned in the headline?
- Does the article cover over 50% of the page?
- Is it on page 3? *(Considered the second most frequently viewed page after the front page, agreed by expert consensus)*
- Does the article use phrases to be avoided as stated in guidelines?
- Are explicit or technical details of the method described?
- Are technical details of an unusual method for the locality described?
- Are the contents of a suicide note described?
- Does it mention or refer to a suicide hotspot?
- Does it report positive outcomes from the death?
- Is the cause of the suicide attributed to a single factor?
- Is there repeated reporting of earlier suicides in the article?
- Does the article report whether the person knew previous suicides or the timing implies a link?
- Does the article highlight community expressions of grief?
- Does the article include interviews with the bereaved?
- Does the article include photographs of the scene, location, or method?
- Does the article include a photograph of the deceased?
- Does the article mention a celebrity suicide?

Good-quality scale items:

- Does the article include recommended language as based on guidelines?
- Does article describe complex or multifactorial causes of the death?
- Does it include sources of information or advice?
- Does it take the opportunity to educate the reader?

covering key periods of media interest: her death, funeral (March 10, 2020), inquest (August 5, 2020–August 6, 2020), death anniversary (February 15, 2021), and the broadcast of a British television documentary (February 16, 2021–March 17, 2021). Articles were categorized as those published in print newspapers and online news content (defined as national and regional newspaper/TV/radio websites, news agency websites, and general news websites). Online content was accessed via links provided and supplementary searches, while print content was derived from the British Library cuttings archive.

Analytic Approach

Content Analysis

To identify items for inclusion in the new PRINTQUAL-web, we used content analysis (Riffe et al., 2005) to review the full text and images of each online article. We ascertained whether articles had followed established media guidelines on the reporting of suicide (World Health Organization, 2008; Samaritans, 2020a) or had features of online news coverage or the portrayal of suicide linked to potential harms (Biddle et al., 2018; Dunlop et al., 2011; Utterson et al., 2017). This involved evaluating whether existing PRINTQUAL items for newspaper reporting (Box 1) applied to online articles and whether novel items specific to online media were indicated. All articles were coded independently by one researcher (RRJ), and 10% were coded independently by a second researcher (KZ). Inter-rater agreement was calculated and the emergent list of codes discussed with a third researcher (AP). One researcher (RRJ) then reviewed all articles to revise the list of codes against original data, agreeing a final list with the wider team. This list informed the identification of criteria denoting the presence/absence of poor-/good-quality features of online media reporting, which we proposed as items for the negative/poor-quality and positive/good-quality subscales in the PRINTQUAL-web, as consistent with the original PRINTQUAL structure.

Consensus-Building Approach on Items for Inclusion

To gain expert consensus on items for inclusion, two researchers (RRJ; AP) prepared a document listing the

proposed items, justifying them with reference to the literature and media guidelines. These were presented to three researchers involved in the original development of the PRINTQUAL (AM; KH; AJ) to confirm a final set of items. We invited these experts' views on whether any additional items should be included, whether suggested omissions were appropriate, and whether the scale as whole had face and content validity for assessing online media content.

Scoring

Following agreement on the final sets of items, two researchers (RRJ; KZ) used the new PRINTQUAL-web tool to review the content for the corpus of online articles and calculate scores, ready for weighting and rescaling.

The same two researchers also used the PRINTQUAL tool to score the corpus of print articles, ready for revising the scaling.

Consensus-Building Approach on Weighting

For weighting items in the new PRINTQUAL-web, we chose a ranking process rather than the assignation of numerical values used in developing weightings for the PRINTQUAL (John et al., 2014). We judged that ranking was more intuitive, allowing individuals to consider the importance of items relative to each other rather than in isolation. For the original PRINTQUAL, 12 international academic experts had ranked items based on their perceived impact on readers' suicide risk. Weightings ranged from 1 to 6, with each item's final weighting representing the mean of all rankings, considering inter-rater score variation by calculating the weighting as a proportion of the total score for all items.

For ranking items in the PRINTQUAL-web, we invited four individuals with lived experience of suicidality (recruited via Samaritans) and six suicide research experts involved in the original weighting of PRINTQUAL items (AM; KH; AJ; Keith Lloyd; Jonathan Scourfield; Stephen Platt) to rank the 18 items in the proposed PRINTQUAL-web negative/poor-quality subscale (from 1 = most negative impact to 18 = least negative impact) and the four items in the positive/good-quality subscale (from 1 = *most positive impact* to 4 = *least positive impact*) based on their perceptions of "the extent to which you think they might have a negative/positive impact on a vulnerable person reading a news article about suicide online." Each expert ranked items independently and anonymously.

Calculation of Weightings and Scaling

We used descriptive statistics to explore the distribution of rankings for the PRINTQUAL-web items and created pooled rankings. We then added a variance coefficient (see formula in Appendix) to take into account interexpert disagreement (i.e. the degree of variance between raters). As weightings are unique to the PRINTQUAL and PRINTQUAL-web, total weighted scores are not directly comparable across tools because they do not use the same relative metric. By examining the distribution of scores in each subscale for both tools we identified a factor that,

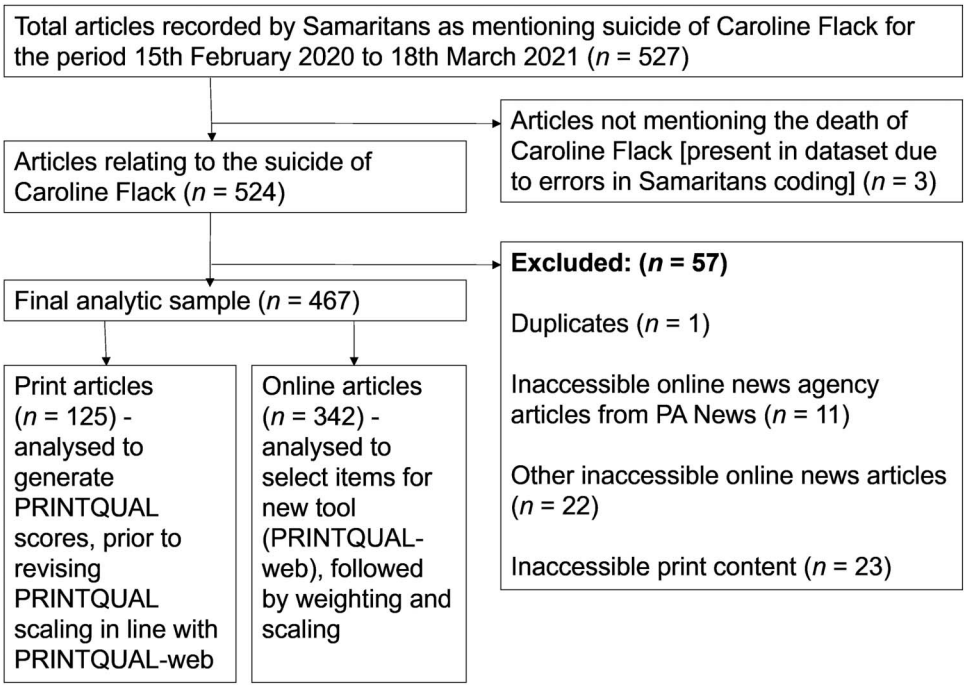

Figure 1. Flow of articles analyzed for revision of PRINTQUAL scaling and development of the PRINTQUAL-web tool.

when multiplied by final scores, created rescaled subscale scores that used a common reference range and metric whilst preserving their true weight, facilitating direct comparison across the tools.

Results

Eligible Online Content

Four hundred sixty-seven articles in the Samaritans' Media Advisory Service database matched our inclusion criteria for print or online news reporting on the suicide of Caroline Flack over the period of interest (Figure 1). The majority were online (n = 342; 73% vs. print n = 125; 27%).

Content Analysis

For our independent coding of online articles, inter-rater agreement was high (94%) and reached 100% after discussion to reach consensus. Our content analysis identified four new items for inclusion in the PRINTQUAL-web negative/poor-quality subscale (listed below) and ruled out five items in the original PRINTQUAL negative/poor-quality subscale as not relevant for print media (see Box 2). Our analysis identified no new items for the PRINTQUAL-web positive/good-quality subscale, as all items in the existing PRINTQUAL positive/good-quality subscale also applied to online articles (Box 2). The four new items for potential inclusion in the negative/poor-quality subscale were:

1. **Was it shared on the news outlet's social media sites (Facebook and/or X)?** This captured the amplifying effect of social media (and the visibility of the article) as well as the direct harms of unregulated social media content (Niederkrotenthaler et al., 2019). We evaluated this by using the search function that allows users to search for news headlines or key words on news outlets' feed, available only on certain social media sites (X and Facebook).
2. **Does it make links to other reports about the suicide of the same person or other people?** This addressed the risk of exposure to regulated/unregulated content through cookie-based targeting and social media algorithms that promote similar stories (Amnesty International, 2024; Biddle et al., 2018; Walker, 2022). We evaluated this by clicking on any links in the article and assessing whether the main topic related to suicide.
3. **Does it include user-generated comment threads?** This captured potential exposure to sensationalist and triggering language when comments threads were unregulated, given that suicide discussion forums can increase suicidality among younger users (Dunlop et al., 2011).
4. **Has it been edited since its release date?** This reflected where irresponsible content had triggered complaints, prompting edits. We measured post-publication edits by comparing articles' release and last edit dates. However, over 40% lacked an edit date, and it was often unclear what changes had been made, making it difficult to assess.

Agreement on Inclusion/Exclusion

We presented the proposed content of the PRINTQUAL-web to the three researchers involved in the original development of the PRINTQUAL (AM; KL; AJ), including these four new proposed items. They excluded the fourth item by consensus due to the difficulties of assessing it accurately.

Box 2. Proposed items for inclusion in PRINTQUAL-web tool

Negative/poor-quality scale:

Items agreed as relevant for inclusion in the PRINTQUAL-web:

1. Was it shared on the news outlet's social media sites (X and/or Facebook)?
2. Does it make links to other reports about the suicide of the same person or other people?
3. Does it include user-generated comment threads?
4. Has it been edited since its release date? *(this item was excluded after expert discussion)*

Items in the PRINTQUAL tool agreed as not relevant for inclusion in the PRINTQUAL-web:

- Is the article on the front page?
- Is it the main headline on the front page?
- Does the article cover over 50% of the page?
- Is it on page 3?

Positive/good-quality scale:

No additional items were suggested. All PRINTQUAL items in this scale were judged to be relevant to the PRINTQUAL-web.

These discussions resulted in a final list of 18 proposed items for the PRINTQUAL-web negative/poor-quality subscale (as distinct from the 19 in the original PRINTQUAL negative/poor-quality subscale) and four proposed items for the PRINTQUAL-web positive/good-quality subscale (identical to the four in the original PRINTQUAL positive/good-quality subscale). Our experts reached 100% agreement on inclusion/exclusion of proposed items.

Weighting and Scaling

On circulating the 22 items to our 10 lived experience and academic experts for ranking, we received a 100% response rate. Internal reliability was moderate ($W = 0.34$) for negative/poor-quality subscale and weak ($W = 0.28$) for positive/good quality subscale. The relatively weak agreement between raters for the PRINTQUAL-web positive/good quality subscale may reflect a divergence of views between research experts and lived experience experts, but this does highlight the importance of values reflecting a range of views. For comparison, internal reliability for the PRINTQUAL was excellent ($W = 0.765$) for the negative/poor-quality subscale and perfect ($W = 0.904$) for the positive/good quality subscale.

We computed total scores for eligible online articles on the PRINTQUAL-web negative/poor-quality subscale and the positive/good-quality subscale, added weightings based on our ranking exercise. Having examined the distribution of scores in each scale for the PRINTQUAL-web and PRINTQUAL, we identified a factor for rescaling scores. Final scores for each scale were then expressed out of 1,000 for the negative/poor-quality subscale and 219 for the positive/good-quality subscale, rescaled for comparability whilst preserving their true weight (Appendix). Minimum scores were 0 for each subscale. Maximum scores were 1,000 for the negative/poor-quality subscale and 219 for the positive/good-quality subscale. Note that high scores denote a non-optimal outcome for the negative/poor-quality subscale and an optimal outcome for the positive/good-quality subscale. Thus, optimal scores (indicating responsible journalism) would be 0 on the negative/poor-quality subscale and 219 on the positive/good-quality subscale whilst non-optimal scores (representing irresponsible journalism) would be 1,000 and 0, respectively.

Final Versions

We developed an automated Microsoft Excel file for each tool to automatically sum, weight, and rescale PRINTQUAL or PRINTQUAL-web items, generating directly comparable total scores. After publication of the updated WHO/IASP media guidelines, we revised wording to clarify that our PRINTQUAL-web item assessing photos also includes video/audio of the scene, location, or method (World Health Organization, 2023).

Discussion

We developed a new PRINTQUAL-web tool for assessing the quality of online news reporting, complementing the existing PRINTQUAL tool for print newspaper reporting. We rescaled both tools for easier interpretation and direct comparison, providing macros for researchers to calculate scores for any corpus of newspaper or online articles (available upon request from the corresponding author). This work should encourage analysis of print and online reporting of suicide, comparing scores across media, timepoints, countries, journalists, and subjects. Scores could also be used in interventional studies, evaluating articles before and after guideline introductions or initiatives.

Strengths and Limitations

Our approach utilized a comprehensive, representative database using rigorous analytic methods and consensus-building to select items for inclusion in the new tool. Independent coding of data, with multidisciplinary team discussions over any discrepancies, increased the reliability of our analysis and therefore the face validity of the items selected. Expert input, including lived experience, strengthened validity in item selection and weighting. Our team discussions addressed reflexivity by considering our own personal experiences, assumptions and beliefs about the topic, and how this might influence the research process. The PRINTQUAL-web prioritizes objective metrics, such as article sharing, inclusion of links, and user-generated content, over subjective judgment. The application of weightings in the PRINTQUAL/PRINTQUAL-web offers key advantages over the only other validated measure available, the TEMPOS, which assumes all items have equal value (Sorensen et al., 2022). The likely differential impact of different items is captured by applying weightings based on expert consensus. Our two co-produced tools therefore offer advantages over the approaches taken in a range of media reporting studies conducted internationally using validated and unvalidated tools.

Limitations

Limitations of our approach include the possibility that some articles were missed in compiling or searching the

Samaritans' Media Advisory Service's database. Our binary agree/disagree rating may not capture nuance as well as scales delineating the degree of adherence, such as the TEMPOS (Sorensen et al., 2022). A key limitation of the tool is that it was developed based on the reporting of one individual's death by suicide. Their sociodemographic characteristics (female and a celebrity) may have influenced style of reporting. However, our item selection (for example that on user-generated content) was also influenced by other studies using a checklist approach on suicides in the noncelebrity population (e.g., Utterson et al., 2017), as well as expert consensus based on knowledge of the evidence base, to capture the context for suicide reporting more generally. We therefore feel the items apply to both celebrity and non- celebrity news coverage. Items in PRINTQUAL-web do not include a quantitative estimate of the reach of online articles (e.g., views/click-throughs), just as the PRINTQUAL does not include an estimate of newspaper circulation figures. However, the PRINTQUAL-web does capture whether articles were shared on social media, offering an alternative measure of reach. PRINTQUAL-web also does not capture where the original online article featured on the landing page of the host news website (e.g., as the leading article, akin to page 1 or page 3 as the most prominent pages of a newspaper) as this was not possible to ascertain retrospectively. Scoring of the PRINTQUAL-web therefore relies only on the information available within the article, rather than contextual content.

Policy and Research Implications

The PRINTQUAL-web supports efforts to monitor the quality of online news reporting on suicide, aiming to improve awareness and adoption of media guidelines among editors and journalists responsible. Collaborative approaches, such as awards for print media professionals, have shown success internationally and could improve online journalism (Dare et al., 2011). It may also be helpful for journalists to review their PRINTQUAL/PRINTQUAL-web scores to reflect on their practice and its impact. Internet providers could also incorporate PRINTQUAL-web scores into search engine optimization as part of broader suicide prevention responsibilities (Kirtley & O'Connor, 2020).

No tool currently measures the quality of television, film, play, radio/podcast, website, or social media. Social media is a priority, as 36% of young adults use social media as their primary news source (Ofcom, 2021). Developing such a tool presents challenges due to diverse producers and user gratifications, including the rewards of interaction and information-seeking (Whiting & Williams, 2013). Any intervention should be informed by previous co-produced guidelines developed in the United Kingdom by Samaritans (Samaritans, 2020b) and in Australia for the #Chatsafe project (Robinson et al., 2018, 2023).

Conclusions

The development of the PRINTQUAL-web tool for online news reporting of suicide complements the PRINTQUAL tool for newspaper reporting of suicide. Each offers a means of monitoring two key types of media content on suicide. However, future work should develop tailored measures for monitoring social media, television, radio/podcast, and website content. Assessment of guideline adherence is important for research and evaluation of media guideline implementation, but efforts are still needed to engage journalists, as well as all those who generate content across different communication channels.

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History
Received December 27, 2024
Revision received March 14, 2025
Accepted March 24, 2025
Published online April 14, 2025

Acknowledgments
We are grateful to the RCPsych Faculty of General Adult Psychiatry for a grant to AP for this work, funding access to the Samaritans Media Advisory Service database and the input of lived experience experts. We are grateful to Maxine Frances Roper and Andy Willis and two anonymous lived experience experts for their input, to the National Suicide Prevention Alliance for linking us to their NSPA Lived Experience Influencers, and to Professors Keith Lloyd, Jonathan Scourfield, and Stephen Platt for their input. We also acknowledge Professor Jon Roiser, UCL Institute of Cognitive Neuroscience, for his advice on rescaling weighted scores.

Funding
Open access publication enabled by University College London, UK.

ORCID
Ruby Rose Jarvis
https://orcid.org/0000-0001-5185-5525
Agatha Anet Alves
https://orcid.org/0000-0002-4633-9064
Amanada Marchant
https://orcid.org/0000-0001-7013-6980
Keith Hawton
https://orcid.org/0000-0003-4985-5715
Ann John
https://orcid.org/0000-0002-5657-6995
Alexandra Pitman
https://orcid.org/0000-0002-9742-1359

Ruby Rose Jarvis
Division of Psychiatry
University College London
6th Floor Maple House, 149 Tottenham Court Road
London, W1T 7NF
United Kingdom
ruby.jarvis.20@ucl.ac.uk

Ruby Rose Jarvis, MSc, is an Economic and Social Research Council (ESRC) funded PhD student in the epidemiology and applied clinical research program at the UCL Division of Psychiatry, London, UK. Her research interests focus on suicide prevention, shared decision making, and first episode psychosis.

Agatha Anet Alves, MSc, is a Wellcome Trust PhD student at the UCL Division of Psychology and Language Sciences, London, UK. Her research focuses on disentangling the cognitive mechanisms of different anxiety disorders.

Kangning Zheng, formerly a MSc student in clinical mental health sciences at the UCL Division of Psychiatry, London, UK, has conducted research on the experience of loneliness among international students and its impact on mental health. Her research focuses on exploring the role of interpersonal relationships in developing depression and anxiety disorders.

Monica Hawley serves as a media adviser at Samaritans, Surrey, UK. She has co-authored research on media coverage and its impact on public perceptions of suicide, including studies analyzing the quality and content of UK news reports during the COVID-19 pandemic.

Amanda Marchant, PhD, is a research fellow at Swansea University Medical School, Swansea, UK. Her research interests include child and adolescent mental health, self-harm and suicide prevention, and health informatics.

Keith Hawton, FMedSci, is Professor of Psychiatry and Emeritus Director of the Centre for Suicide Research, University of Oxford, UK. His research group has been involved in investigating the causes, treatment, prevention, and outcome of suicidal behaviour, including media influences.

Ann John, MBBS, FFPH, MD, is a clinical professor of public health and psychiatry at Swansea University Medical School, Swansea, UK, with a background in primary care and public health. She is the Director of the National Centre for Suicide Prevention and self-harm with a research focus on suicidal behaviours and the translation of evidence into policy and practice.

Alexandra Pitman, MBBS, MRCPsych, PhD, is a professor of psychiatry in the UCL Division of Psychiatry, London, UK, and an honorary consultant psychiatrist in the veterans' mental health service at North London NHS Foundation Trust. Her research interests include understanding risk factors for suicide and self-harm, including those influencing the cognitive availability of suicide and self-harm.

Appendix

Formula Used for Weighting Items in the PRINTQUAL-Web

To account for variability in expert rankings, we calculated weights for each item and scaled the weighted scores to make them comparable between the PRINTQUAL-web tool and the original PRINTQUAL tool using the following steps:

- **Proportion**: Calculate the proportion of the ranking for each item for each expert, so it represents how important the item is on a scale.
- **Mean**: Extract the average of this proportion for all experts and subtract 0.5 for normalization
- **Variance**: Calculate the variance of the ratings to account for disagreement between experts; add 0.01 (to fix items that were in complete agreement and therefore equally ranked); inverse this result (reciprocal) to ensure smaller variances will result in larger numbers, so the biggest inter-rater agreements will be more positively correlated with higher weightings, then divide the figure by an arbitrary integer (in this case 50), to normalize the value.
- **Scale average**: Multiply the average of ratings by the average coefficient.
- **Normalise**: Subtract the final score from 1 so values are intuitive (0–100).

$$\text{Weight} = 1 - \left(\left(\frac{\frac{1}{\text{var}(\text{Ratings}) + 0.01}}{50} * \left(\text{avr}\left(\frac{\text{Ratings}}{\text{Total}} \right) \right) - 0.5 \right) + 0.5 \right)$$

Once the total score for an item was calculated we transformed the scale so it would be comparable across the PRINTQUAL and PRINTQUAL-web. As the number of items in the PRINTQUAL and PRINTQUAL-web differed, which PRINTQUAL having 19 items and PRINTQUAL-web 18 items, scaling was conducted slightly differently for each tool. We achieved this by adding 0.623 (PRINTQUAL-web) to (11.2 points in total) and 0.542 (PRINTQUAL; 10.3 points in total) to each negative/poor-quality items and 0.6 (PRINTQUAL-web; 2.4 points in total) and 0.6 (PRINTQUAL; 2.4 points in total) to each positive/good-quality item, then multiplying the total score by 50; These arbitrary numbers were added to each item so that the resulting total scores were on a scale from 1 to 1,000 for the negative items and 1–219 for the positive items. This meant scores could be compared more easily between different corpora of articles (e.g. print vs. online; over time; between countries; between content published on different individuals).