Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

# Assessing the Quality of Health Journalism: The CUE Framework and Initial Empirical Evidence

**Youngkee Ju**

youngj@hallym.ac.kr

Hallym University https://orcid.org/0000-0001-8228-4825

**Pureum Lee**

Hallym University

**Research Article**

**Keywords:** news quality, health journalism, health literacy, credibility, understandability, engagement, CUE framework

**Posted Date:** September 1st, 2026

**DOI:** https://doi.org/10.21203/rs.3.rs-10856872/v1

**License:** This work is licensed under a Creative Commons Attribution 4.0 International License. Read Full License

**Additional Declarations:** The authors declare no competing interests.

## Abstract

Existing approaches to assessing health-news quality have primarily focused on the reporting of medical research and scientific evidence, giving comparatively less attention to health policy, healthcare systems, population trends, and other non-medical topics. To address this gap, this study proposes the CUE framework, which conceptualizes health-journalism quality through three dimensions—credibility, understandability, and engagement—and nine observable indicators. The framework was evaluated through complementary expert assessments, article evaluations, regression analyses, and intercoder reliability testing. Journalists and specialists in medicine and public health regarded the framework and its indicators as relevant, comprehensive, and useful. Experts also evaluated articles previously classified as relatively high or low in CUE, with the high-CUE article receiving significantly more favorable evaluations of writing quality, usefulness, and journalistic quality. In contrast, lay participants did not distinguish between high- and low-CUE article conditions. Across both expert and lay-participant samples, all three CUE dimensions were significantly associated with overall evaluations of article quality, although the influential individual indicators differed between the two groups. The nine indicators also demonstrated satisfactory intercoder reliability (Krippendorff's $\alpha$ = .824–1.000). These findings provide preliminary support for CUE as a complementary framework for assessing health journalism across both medical and non-medical topics. By identifying reporting features that make health information credible, understandable, and publicly relevant, CUE may also inform efforts to strengthen health literacy and the broader information environment for health promotion.


## Introduction

Health news is an important interface through which scientific and medical information reaches the public, shaping how people understand health issues, interpret emerging evidence, and make health-related judgments and decisions (Gollust et al., 2019; Viswanath et al., 2008). Its quality therefore matters not only because inaccurate or misleading reporting can distort public understanding, but also because even factually correct information may have limited public value when it is difficult to understand, insufficiently contextualized, or disconnected from audiences' practical concerns. In this context, the systematic assessment of health-journalism quality remains an important task for both journalism research and the study of public communication about health.

As with journalism more broadly, evaluating health journalism requires explicit criteria that translate normative expectations of quality into observable features of news content (Lacy & Rosenstiel, 2015). Previous studies have developed measures for evaluating medical information and health news (Oxman et al., 1993; Zeraatkar et al., 2017) as well as news quality more generally (Urban & Schweiger, 2014; Bachmann et al., 2022). Health-news assessment instruments have made important contributions by providing systematic criteria for evaluating the quality of health and medical information presented in news reports (Oxman et al., 1993; Zeraatkar et al., 2017; Lee et al., 2021). Such approaches are particularly well suited to evaluating reporting centered on medical and health-related evidence.

Health journalism, however, extends beyond the reporting of medical and scientific evidence. It also encompasses health policy and legislation, healthcare systems, population trends, prevention, environmental risks, and social conditions affecting health. More broadly, health journalism constitutes an important site of public communication in which scientific and medical evidence intersects with policy, institutional decisions, population-level information, and the everyday concerns of citizens. Existing assessment tools therefore may not adequately capture quality across the full range of contemporary health journalism. Assessing its quality requires attention not only to scientific accuracy but also to whether reporting provides sufficient context, communicates information understandably, and connects health issues to their relevance and practical implications for audiences.

Building on existing journalism-quality frameworks while addressing the broader scope of health journalism, the present study proposes the CUE framework. The framework organizes health-journalism quality into three complementary dimensions—credibility, understandability, and engagement—that together provide a structured approach to assessing both medical and non-medical health reporting. Consistent with recent work emphasizing the need for flexible frameworks for assessing communication quality across diverse contexts (Fähnrich et al., 2023), CUE treats these dimensions not as manifestations of a single latent construct but as distinct yet complementary aspects of journalistic quality that can be assessed through observable features of news content. From this perspective, health-journalism quality concerns not only the accuracy of reported information but also how health information is made accessible, interpretable, and relevant to public audiences. In this way, CUE extends health-news assessment beyond scientific accuracy by integrating recurring concerns from journalism-quality research and health-information assessment into a framework applicable to both medical and non-medical health topics.

The present study provides an initial empirical examination of the CUE framework. Specifically, it evaluates (1) experts' perceptions of the framework's relevance, comprehensiveness, and usefulness, (2) whether experts' overall evaluations corresponded to prior CUE-based classifications of relatively high- and low-quality articles, (3) how the CUE dimensions and individual indicators were associated with overall evaluations of article quality, and (4) the intercoder reliability of the individual indicators. Together, these analyses provide initial empirical support for the CUE framework while identifying areas for further refinement.

## Literature Review

# Previous research on journalism quality

Scientific and empirical approaches to understanding news quality became an important part of public discussions of media quality during the 1990s (McQuail, 1992). Journalism-quality research has examined news reports using diverse criteria, including depth and breadth of coverage, balance, local relevance, trustworthiness, presentation quality, and diversity (Bernstein & Lacy, 1992; Lacy & Sohn, 1990; Schönbach, 2000; Lacy & Rosenstiel, 2015). Taken together, this body of research highlights the multidimensional nature of news quality, which cannot be adequately captured by a single criterion (Lacy & Rosenstiel, 2015). Lacy and Rosenstiel's (2015) review identified several recurring dimensions, including trustworthiness,

presentation quality, diversity, depth and breadth of information, public affairs, and geographic relevance. Together, these dimensions illustrate the range of criteria that have been used to conceptualize journalism quality.

While these general dimensions provide a useful foundation for evaluating journalism across topics, specialized domains may require additional criteria that reflect their distinctive informational and communicative demands. Lacy and Rosenstiel (2015), for example, argue that prevalent characteristics of journalism can provide broadly applicable standards of quality. At the same time, research in specialized areas has shown the value of adapting such standards to particular communicative contexts. Rögener and Wormer (2017), for example, developed criteria for good environmental journalism and applied them to published news reports, combining general journalistic standards with considerations specific to science and environmental reporting. Health journalism presents a similar challenge: its assessment should preserve the strengths of general journalism-quality research while incorporating criteria responsive to the distinctive characteristics of health information and reporting. Building on this body of research, the present study sought to identify a parsimonious set of quality criteria that could be applied consistently across the diverse forms of contemporary health journalism.

# The CUE Framework and Its Indicators

The CUE framework operationalizes credibility, understandability, and engagement through nine observable indicators of health-journalism quality. The indicators were selected by integrating criteria from general journalism-quality research with those used in previous assessments of health and medical reporting. The following sections describe the conceptual basis of each dimension and the indicators through which it is assessed.

## Credibility

Among the three dimensions, credibility concerns whether a health news report is trustworthy. Accuracy and trustworthiness have long been treated as core standards of journalism quality, but audiences may have limited ability to verify medical, scientific, or policy claims independently (Lacy & Rosenstiel, 2015; Oxman et al., 1993). Credible health journalism should therefore provide sufficient information for readers to understand where claims originate, how strongly they are supported, and how they relate to broader circumstances.

The CUE framework operationalizes credibility through source transparency, informing validity, and contextualization. Source transparency concerns whether the people, organizations, studies, or documents supporting the article's principal claims are identified clearly enough for readers to assess their authority and possible interests. This criterion builds on research treating source identification and diversity as observable components of journalistic quality (Zeldes et al., 2008).

Informing validity refers to the provision of information that assists readers in evaluating the evidentiary strength of the article's main claims. Adapted from Oxman et al. (1993), it does not require journalists to establish the ultimate truth of a claim. Rather, it concerns whether reporting explains relevant features of

the evidence, such as the methods and limitations of a study, the degree of scientific uncertainty, the process through which a policy was developed, or the institutional and material conditions affecting its implementation. Because health journalism includes both medical and non-medical topics, the evidence relevant to validity may differ by article type. What remains consistent is the expectation that reporting should do more than relay claims without examining the basis on which they rest.

Contextualization concerns whether particular findings, events, policies, or statistics are placed within longer-term developments or broader social and institutional circumstances. Bachmann et al. (2022) identify contextualization as a core news-quality criterion because isolated information can be difficult to interpret without relevant background. In health journalism, context may include historical trends, comparisons with earlier evidence, population-level patterns, institutional conditions, or policy developments. Together, the three credibility indicators assess whether readers are given sufficient information to judge the basis, strength, and context of the article's central claims.

## Understandability

Understandability refers to whether readers can identify and process the central meaning of a health story. Comprehensibility and presentation quality have been recognized in both general news-quality research and health-information assessment (Urban & Schweiger, 2014; Lee et al., 2021). Their importance is heightened in health journalism, where specialized terminology, numerical evidence, and complex causal explanations can prevent nonspecialist audiences from grasping facts material to their choices (Fischhoff, 2013).

The framework represents understandability through readability, headline match, and jargon explanation. Readability concerns the linguistic accessibility of the article, including the burden imposed by sentence and word complexity. Although no readability measure fully captures comprehension, such measures offer a systematic indication of how demanding a text may be for its intended audience (DuBay, 2004, 2006).

Headline match concerns whether the headline accurately represents the article’s lead or central theme. Headlines frame readers’ initial interpretation of a story and often determine whether and how an article is read. A headline that overstates, misdirects, or is disconnected from the principal content can therefore obscure the article’s central meaning, even when the body of the story is otherwise accurate. Research on misleading and clickbait headlines similarly suggests that a headline’s attention-generating function can conflict with its informational function (Pengnate et al., 2021; Scott, 2023).

Jargon explanation concerns whether medical, scientific, statistical, or policy terms essential to the article’s main claims are explained for nonspecialist readers. Public audiences need not acquire extensive professional knowledge, but they need access to the facts and concepts necessary for informed judgment and decision-making (Fischhoff, 2013). These three indicators address related but distinct barriers to understanding: general linguistic complexity, inconsistency between the headline and central message, and unexplained specialized terminology.

## Engagement

Engagement is a broad and conceptually diverse construct in journalism research. It can refer to cognitive attention, emotional involvement, participatory behavior, relationships between news organizations and audiences, or subsequent action. Gajardo and Costera Meijer (2022) emphasize that audience engagement should not be treated as a single uniform phenomenon because its meaning and forms vary across stages, actors, and journalistic contexts.

The CUE framework does not attempt to measure this full range of audience engagement, nor does it assume that the presence of particular article features necessarily produces audience participation or behavioral change. Instead, engagement is defined more narrowly as the potential of an article to make health information personally relevant, actionable, and experientially concrete. This restricted definition distinguishes features of the news text from audience responses that require separate empirical measurement.

The framework operationalizes engagement through informing applicability, efficacy information, and anecdotes. Informing applicability concerns whether a report specifies the people, populations, or circumstances to which the central health information is relevant. Risk and health information may attract greater attention and support more meaningful interpretation when readers can determine whether and how an issue applies to them or to groups about whom they are concerned (Covello & Sandman, 2001; Zhou et al., 2016).

Efficacy information concerns whether the report identifies possible responses to a health issue and, where appropriate, explains whether and how those responses may be effective. Information about available actions can help readers understand that a risk or problem is not merely consequential but potentially manageable (Moriarty & Stryker, 2008; Evensen & Clarke, 2012). The criterion assesses whether such information is provided, not whether readers subsequently act on it.

Anecdotes refer to concrete individual cases used to illustrate the main issue addressed in a report. Narrative and episodic evidence can make abstract information more vivid and experientially accessible, and may influence intentions differently from statistical evidence (Greene & Brinn, 2003; Zebregs et al., 2015). However, anecdotes do not necessarily improve journalism quality and may distort perceptions when individual cases are unrepresentative of the broader evidence.

## Integrating the Nine Indicators

The nine indicators operationalize different aspects of the three CUE dimensions while remaining applicable to both medical and non-medical health reporting. Source transparency, informing validity, and contextualization address whether the basis and meaning of central claims can be evaluated. Readability, headline match, and jargon explanation address whether the article's principal information can be accessed and understood. Informing applicability, efficacy information, and anecdotes address, respectively, the relevance of health information, possible responses, and the representation of health issues through concrete human cases.

The framework does not assume that all nine indicators must always be present or that they necessarily vary together. Their relevance may differ according to the topic, purpose, and informational demands of a particular health story. For example, an article may clearly identify its sources while providing little contextual information, may be highly readable while leaving essential jargon unexplained, or may provide clear efficacy information without including an anecdote. CUE is therefore best understood as a structured assessment framework composed of distinct but complementary quality criteria rather than as a reflective psychometric scale in which the indicators are expected to represent interchangeable manifestations of a single underlying trait. The specific decision rules and scoring procedures used to apply each indicator are described in the Methods section and summarized in Table 1.

Table 1
Indicators of credibility, understandability, and engagement (CUE)

| Aspects | Indicators | Questions/Statements |
|---|---|---|
| Credibility (Cronbach's Alpha = 0.73) | Source transparency | Is the source of the main news facts provided clearly? (1 = The source name and title are clearly presented; 0.5 = The source information is provided but not clear enough; 0 = No source information regarding the main facts is provided) |
| | Informing validity | Is the information that helps determine the credibility of the main facts in the news provided? (1 = The validity information that helps determine the credibility of the main facts is clearly provided;0.5 = The validity information is provided but not clear enough; 0 = No validity information is provided) |
| | Contextualization | Are the main facts in the news story presented in a context of a longer term or wider category? (1 = The main fact is provided in a context of a longer term or wider category;0.5 = Although the direct reason for the main fact is provided, the main information is not placed in any context; 0 = The main fact is delivered with no contextual information. |
| Understand-ability | Readability | *A measure developed by Korean language education scholars (Jo et al., 2020) is used |
| (Cronbach's Alpha = 0.72) | Headline match | Does the headline represent the main theme of the news story? (1 = The theme of a story is represented in the headline; 0.5 = The headline touches the topic in some way, but not exactly the theme; 0 = The headline represents neither the theme nor topic of the story) |
| | Jargon explanation | Is the jargon explained enough? (1 = The jargon in the whole story is explained; 0.5 = The jargon in the main facts is explained but the one in the rest is not; 0 = The jargon is rarely explained, making the main theme hard to understand) |
| Engagement (Cronbach's Alpha = 0.66) | Informing applicability | Does the news story provide information regarding who benefits from the news content? (1 = The story indicates a group to whom the main message could be especially relevant and useful; 0 = The story does not specify any group of people who could be especially relevant) |
| | Efficacy information | Does the news story provide information regarding available options on how to respond to a reported health issue or explain how useful the options are? (1 = Specific actions and measures or their positive effects are explained; 0 = No such information is provided) |
| | Anecdotes | Is an individual case exemplifying the main theme provided? (1 = An individual case or episode is mentioned; 0 = No such case is mentioned) |

# Assessment of the CUE Framework

The coding scheme was refined through four rounds of pretesting using 71 health-news articles. After each round, two coders independently applied the indicators, discussed disagreements, and revised the coding

rules until satisfactory intercoder agreement was achieved (Krippendorff's α = .80 or higher). The pretesting process focused on refining the coding rules and determining whether the proposed indicators captured the intended aspects of the three CUE dimensions (credibility, understandability, and engagement) and could be applied consistently by independent coders.

The framework was evaluated through four complementary analyses: (1) expert evaluations of the framework and its indicators, (2) comparison between prior CUE-based article classifications and independent expert evaluations, (3) associations between the CUE dimensions and overall evaluations of article quality, and (4) intercoder reliability. The first analysis focused on experts' evaluations of the framework and its constituent indicators. Twenty-six journalists and 25 experts in public health and medicine completed a 14-item questionnaire evaluating the framework as a whole and its three constituent dimensions. The questionnaire was adapted from previous studies evaluating the quality of medical information (Feinstein, 1987; Oxman et al., 1993). Five items assessed the framework as a whole. The remaining nine evaluated each of the three CUE dimensions in terms of perceived validity, comprehensiveness, and expected reliability, with three items devoted to each dimension. For example, understandability was evaluated in terms of whether its three indicators adequately captured the dimension, were sufficiently comprehensive to cover both medical and non-medical health reporting, and were expected to produce consistent assessments across different raters.

The second analysis examined whether independent evaluations of article quality corresponded to prior CUE-based classifications of relatively high- and low-CUE articles. For this analysis, experts evaluated previously published health-news articles that had previously received relatively high or low CUE scores. Experts read both articles and responded to 15 questions. Nine questions assessed the individual CUE indicators, three provided broader evaluations corresponding to the three CUE dimensions ("easy to understand," "credible," and "encouraging health behaviors"), and the remaining three assessed overall article quality ("well-written," "useful," and "showcases high-quality journalism"). For lay participants, an additional set of two relatively high- and two relatively low-CUE articles was used. Each participant ($N$ = 160) evaluated one article, with 40 participants assigned to each of the four article conditions.

For the expert sample, differences between the two articles were examined using paired-samples t-tests because each expert evaluated both articles. For the lay sample, differences between the high- and low-CUE article conditions were examined using independent-samples t-tests. The third analysis examined how the CUE dimensions and individual indicators were associated with overall evaluations of article quality using multiple regression analyses. Separate models were estimated using the three CUE dimensions and the nine individual indicators as predictors of overall article-quality evaluations. The models also included age, gender, education, frequency of health-news use, and general perceptions of health-news quality as control variables.

The final analysis assessed the intercoder reliability of the nine indicators using a separate sample of 60 health-news articles. The articles were drawn from four South Korean newspapers (*Chosun-Ilbo, Joong-Ang-Ilbo, Hankyoreh-Sinmun*, and *Kyunghyang-Sinmun*) published between January and April 2025 and were identified using the keyword "chronic disease." One graduate student and one undergraduate student served

as coders. They were trained in two stages using sets of 20 and 30 articles before independently coding the final sample of 60 articles.

## Results

To obtain background information on the quality of health news, we asked 51 experts in journalism (26) and public health/medical science (25) about the quality status of health journalism and the need to develop a quality measure for health news articles. The perceived quality tended to be “low” ($M$ = 2.55, $SD$ = 0.67), where “2” represents “low,” and “3” means “middle of the road,” and “4” refers to “high.” Journalists ($M$ = 2.46, $SD$ = 0.71) and public health/medical specialists ($M$ = 2.64, $SD$ = 0.64) did not differ significantly in their assessments of the current quality of health journalism. However, the two groups differed significantly in their perceived need for a quality measure; medical experts (M = 4.52, SD = 0.59) perceived a greater need than journalists ($M$ = 3.88, $SD$ = 0.71, $t(47.89) = 3.49$, $p$ = .001, Cohen’s $d$ = 0.99).

The first analysis examined experts' evaluations of the CUE framework itself. Overall, both journalists and public health/medical specialists regarded the framework and its constituent dimensions as appropriate, comprehensive, and useful for assessing health journalism (Table 2). Experts in both groups regarded the framework as an appropriate basis for assessing health-news quality, with no significant differences between journalists (M = 4.12, SD = 0.71) and public health/medical specialists (M = 4.48, SD = 0.71). Similarly, evaluations of the framework's comprehensiveness and usefulness were consistently favorable across both expert groups, with mean ratings ranging from 3.85 to 4.28.

Table 2
Expert evaluations of the CUE framework and its dimensions and indicators

| Dimension | Criterion | Public health / medical specialists | Journalists | p |
|---|---|---|---|---|
| Framework as a whole | Validity | 4.48 (0.71) | 4.12 (0.71) | N.S. |
| | Comprehensiveness | 3.92 (0.91) | 3.92 (0.74) | N.S. |
| | Usefulness | 4.24 (0.88) | 3.77 (0.82) | N.S. (p = .053) |
| | Contribution | 4.28 (0.74) | 3.85 (0.92) | N.S. |
| | Applicability | 4.04 (0.84) | 3.85 (0.73) | N.S. |
| Credibility | Perceived validity | 4.44 (0.65) | 4.12 (0.52) | N.S. |
| | Comprehensiveness | 4.24 (0.66) | 3.92 (0.63) | N.S. (p = .09) |
| | Expected reliability | 4.08 (0.76) | 3.92 (0.69) | N.S. |
| Understandability | Perceived validity | 4.32 (0.69) | 4.00 (0.49) | N.S. |
| | Comprehensiveness | 4.16 (0.80) | 3.85 (0.61) | N.S. |
| | Expected reliability | 3.88 (0.88) | 3.96 (0.66) | N.S. |
| Engagement | Perceived validity | 4.12 (0.93) | 3.88 (0.91) | N.S. |
| | Comprehensiveness | 3.80 (0.96) | 3.77 (0.86) | N.S. |
| | Expected reliability | 3.92 (0.91) | 3.73 (0.87) | N.S. |

Note. Values are M (SD). N.S. = not significant.

At the indicator level, the nine indicators also received favorable evaluations across the three criteria, with mean ratings ranging from 3.73 to 4.44. Regarding their perceived validity as quality indicators, all indicators received mean ratings above 4.0 except the three engagement indicators evaluated by journalists (M = 3.88, SD = 0.91). No significant differences were observed between journalists and public health/medical specialists (Table 2).

The second analysis examined whether experts' overall evaluations corresponded to prior CUE-based classifications of relatively high- and low-quality articles. Experts consistently evaluated the article previously classified as high in CUE more favorably than the article classified as low in CUE. For example, experts rated the high-CUE article significantly higher on writing quality (M = 3.53, SD = 1.01) than the low-CUE article (M = 2.65, SD = 0.96), mean difference = 0.88, 95% CI [0.47, 1.29], t(50) = 4.34, p < .001, Cohen’s d = 0.61 (Table 3).

Table 3
The overall quality of the sample articles with high/low CUE scores perceived by experts in public health/medical science and journalists

| | **High** | | **Low** | | **Mean Difference (95% CI)** | ***t* (df = 50)** | ***P*** | **Cohen's *d*** |
|---|---|---|---|---|---|---|---|---|
| | ***M*** | ***SD*** | ***M*** | ***SD*** | | | | |
| "Well-written" | 3.53 | 1.01 | 2.65 | 0.96 | 0.88(0.47, 1.29) | 4.34 | < .001 | 0.61 |
| "Useful" | 3.75 | 0.91 | 3.33 | 0.93 | 0.41(0.09, 0.73) | 2.59 | .012 | 0.36 |
| "Showcases quality journalism" | 3.29 | 0.97 | 2.37 | 0.92 | 0.92(0.56, 1.28) | 5.15 | < .001 | 0.72 |

Unlike experts, lay participants did not distinguish between the two articles in their overall evaluations. Each lay participant evaluated one article assigned from one of four conditions comprising two high-CUE and two low-CUE articles. Ratings did not differ significantly between the pooled high- and low-CUE conditions. For example, when they were asked if the story they read was "well written," they provided similar evaluations whether they read a high-CUE article ($M$ = 3.03, $SD$ = 0.80) or a low-CUE article ($M$ = 3.28, $SD$ = 0.64, N.S.).

The third analysis examined how the CUE dimensions and individual indicators were associated with overall evaluations of article quality. Overall evaluations of article quality (i.e., well written, useful, and showcasing quality journalism) were averaged and regressed on respondents' evaluations of either the three CUE dimensions or the nine individual indicators. All three CUE dimensions were significantly associated with overall evaluations of article quality (Table 4).

Table 4
The association between the average evaluation of the CUE domains and the perception of overall news quality.

| | ***Quality perceived by experts*** | | | ***Quality perceived by lay participants*** | | |
|---|---|---|---|---|---|---|
| | ***β*** | ***T*** | ***p*** | ***β*** | ***T*** | ***p*** |
| Age | -0.054 | -0.835 | .406 | 0.016 | 0.293 | .770 |
| Gender | -0.033 | -0.560 | .577 | -0.006 | -0.114 | .909 |
| Education | -0.071 | -1.114 | .268 | -0.052 | -0.986 | .326 |
| Health news | -0.049 | -0.819 | .415 | 0.052 | 0.942 | .348 |
| Health news quality | **0.203** | **3.377**** | **.001** | **0.135** | **2.403*** | **.017** |
| Credibility | **0.328** | **4.338**** | **< .001** | **0.352** | **5.049**** | **< .001** |
| Understandability | **0.433** | **5.593**** | **< .001** | **0.186** | **2.539*** | **.012** |
| Engagement | **0.204** | **3.310**** | **.001** | **0.301** | **4.164**** | **< .001** |
| Adjusted $R^2$ | 0.685 | | | 0.576 | | |

Note: *p < .05; **p < .01.

When the nine indicators were entered as predictors for the perceived quality, four and five items were found to be associated with the overall quality of news articles as perceived by experts and lay participants, respectively. In the case of the experts, headline match showed the strongest standardized association with experts' overall evaluations of article quality (β = .31; *t*(85) = 4.07; p<.001), followed by informing validity (β = .31; *t*(85) = 3.23; p=.002), efficacy information (β = .17; *t*(85) = 2.73; p=.008), and informing applicability (β = .17; *t*(85) = 2.45; p=.016; see Table 4). For the lay participants, five items out of nine showed a significant association even though it was much weaker; readability showed the strongest standardized association (β = .24; *t*(145) = 3.31; p= .001), and the next significant CUE criteria were informing validity (β = .17; *t*(145) = 2.26; p= .025), efficacy information (β = .16; *t*(145) = 2.48; p=.014), jargon explanation (β = .15; *t*(145) = 2.26; p=.025), and informing applicability (β = .13; *t*(145) = 1.99; p=.048; see Table 5). As control variables, respondents' general perceptions of health-news quality and their frequency of using health news were also included. General perceptions of health-news quality were significantly associated with evaluations of the sample articles.

Table 5
Exploratory associations between individual CUE indicators and perceived overall health news quality

| | ***Quality perceived by experts*** | | | ***Quality perceived by lay participants*** | | |
|---|---|---|---|---|---|---|
| | ***β*** | ***T*** | ***p*** | ***β*** | ***T*** | ***p*** |
| Age | -0.068 | -1.073 | .286 | 0.004 | 0.076 | .939 |
| Gender | -0.017 | -0.287 | .775 | -0.023 | -0.413 | .680 |
| Education | -0.084 | -1.317 | .191 | -0.062 | -1.155 | .250 |
| Health news | -0.045 | -0.762 | .448 | 0.050 | 0.890 | .375 |
| Health news quality | **0.198** | **3.227**** | **.002** | **0.136** | **2.397*** | **.018** |
| Credibility | 0.060 | 0.579 | .564 | 0.080 | 1.119 | .265 |
| Source transparency | **0.306** | **3.225**** | **.002** | **0.168** | **2.262*** | **.025** |
| Informing validity | 0.088 | 1.433 | .155 | -0.020 | -0.297 | .767 |
| Contextualization | -0.029 | -0.294 | .769 | **0.237** | **3.307**** | **.001** |
| Understandability | **0.312** | **4.074** | **< .001** | 0.056 | 0.824 | .411 |
| Readability | 0.143 | 1.985 | .050 | **0.145** | **2.263*** | **.025** |
| Headline match | **0.168** | **2.449*** | **.016** | **0.132** | **1.990*** | **.048** |
| Jargon explanation | **0.171** | **2.734**** | **.008** | **0.160** | **2.477*** | **.014** |
| Engagement | 0.040 | 0.665 | .508 | 0.091 | 1.478 | .141 |
| Informing applicability | | | | | | |
| Efficacy information | | | | | | |
| Anecdotes | | | | | | |
| Adjusted $R^2$ | 0.701 | | | 0.574 | | |

Note: *p < .05; **p < .01.

The final analysis examined the intercoder reliability of the nine CUE indicators. Overall, the nine indicators demonstrated satisfactory intercoder reliability. Across the final set of 60 health-news articles, Krippendorff's α ranged from .824 to 1.000. The Krippendorff's α for the anecdote indicator was 1.00, indicating perfect agreement. The lowest Krippendorff's α value was observed for the informing validity indicator, which also showed a satisfactory level of agreement (Krippendorff's α = .824; Table 6).

Table 6
Intercoder reliability of the nine CUE indicators

| | | Krippendorff's α |
|---|---|---|
| Credibility | Source transparency | 0.849 |
| Understandability | Informing validity | 0.824 |
| Engagement | Contextualization | 0.882 |
| | Readability Headline match | 0.950 |
| | Jargon explanation | 0.928 |
| | Informing applicability | 0.848 |
| | Efficacy information | 0.890 |
| | Anecdotes | 0.838 |
| | | 1.000 |

## Discussion

Because the CUE framework was conceived as a multidimensional assessment framework rather than a single psychometric scale, its evaluation required multiple, complementary forms of evidence. The present study therefore examined the framework using four approaches. First, experts regarded the framework and its constituent indicators as relevant, comprehensive, and useful for assessing health journalism. Second, experts' overall evaluations corresponded to the prior CUE-based classifications, with experts consistently evaluating the high-CUE article more favorably in terms of writing quality, usefulness, and journalistic quality. Third, the CUE dimensions and several individual indicators showed systematic associations with overall evaluations of article quality. Both the three CUE dimensions and several individual indicators were significantly associated with overall evaluations of article quality among experts and lay participants, suggesting that the CUE dimensions correspond to criteria used when forming judgments about health-news quality. Finally, the individual indicators demonstrated satisfactory intercoder reliability. Taken together, these findings provide converging—though still preliminary—evidence that the CUE framework offers a coherent approach to assessing health journalism quality while also identifying aspects of the framework that warrant further refinement.

The principal contribution of the CUE framework is not simply that it broadens the range of health news that can be evaluated. More fundamentally, it offers a multidimensional conceptualization of health-journalism quality that integrates general standards of journalism with requirements that are specific to health reporting. From a communication perspective, CUE also draws attention to how journalistic practices shape the accessibility, interpretability, and practical relevance of health information for public audiences. Previous assessment tools have made important contributions to evaluating the quality of health and medical information presented in news reports (Oxman et al., 1993; Zeraatkar et al., 2017; Lee et al., 2021; Lawler et al., 2021; Robinson et al., 2013). However, contemporary health journalism extends beyond reporting centered on medical and scientific evidence to include health policy, healthcare systems,

population trends, environmental risks, and other issues that require interpretation of institutional and social contexts. The CUE framework was designed to address this broader scope by combining general journalism-quality dimensions, such as credibility and understandability, with engagement, a dimension intended to capture whether reporting helps readers recognize the personal relevance and practical implications of health information. This broader conceptualization is particularly important because non-clinical health reporting—including reporting on health policy—can shape public understanding, decision-making, and ultimately health outcomes (Teitelbaum et al., 2021).

These features also have implications for health promotion. Health promotion increasingly takes place within complex information environments in which professionally produced health messages coexist with journalism, social media, institutional communication, and misinformation. Within this environment, journalism is not simply a channel for transmitting health information. By identifying sources, contextualizing claims, explaining specialized information, clarifying who is affected, and presenting possible responses, journalism can shape the informational conditions under which people interpret health issues and make decisions. CUE may therefore provide a practical framework for examining whether routine health reporting contributes to an information environment supportive of health literacy and informed action. Among its three dimensions, engagement is particularly relevant to this health-promotion perspective because it concerns whether reporting helps audiences recognize the personal relevance, possible responses, and concrete implications of health information.

In this respect, engagement represents the most distinctive conceptual feature of the CUE framework. Whereas credibility and understandability have long been recognized as important elements of journalism quality, the inclusion of engagement reflects an effort to capture the distinctive communicative role of health journalism. Engagement is a broad and conceptually heterogeneous construct in journalism research, encompassing cognitive, emotional, participatory, relational, and behavioral processes (Gajardo & Costera Meijer, 2022). CUE does not attempt to capture this full range of audience engagement, nor does it assume that particular reporting features necessarily produce behavioral change. Instead, it defines engagement more narrowly in terms of article-level practices that may make health information personally relevant, actionable, and experientially concrete. This conceptualization is reflected in the three indicators of informing applicability, efficacy information, and anecdotes. Specifying to whom health information applies may help readers recognize its personal relevance (Covello & Sandman, 2001; Zhou et al., 2016), while efficacy information can clarify available responses and their potential effectiveness (Evensen & Clarke, 2012; Moriarty & Stryker, 2008). Anecdotes may make abstract health issues more concrete, although narrative evidence can affect audience judgments differently from statistical evidence and should not be assumed to improve quality in all circumstances (Greene & Brinn, 2003; Zebregs et al., 2015). The favorable evaluations of the engagement dimension by journalists and medical and public-health specialists suggest that these reporting practices merit consideration as a possible complement to established journalism-quality criteria. Further research is nevertheless needed to determine whether they influence audience understanding, trust, information use, or health-related decision-making.

An interesting finding was the contrast between experts and lay participants. Whereas experts consistently distinguished between the high- and low-CUE articles, lay participants did not. One interpretation is that

professional evaluations draw more heavily on explicit journalistic standards, whereas lay readers may rely on different criteria when forming overall evaluations of news quality. This pattern is broadly consistent with previous work suggesting that professional and audience evaluations of news quality do not necessarily rely on identical criteria (Urban & Schweiger, 2014). Rather than weakening the value of assessment frameworks, this finding highlights their potential importance for journalism education, professional practice, and public media literacy, where explicit quality criteria may help narrow the gap between professional and public evaluations of health journalism.

Several limitations should be acknowledged when interpreting these findings. First, the framework was evaluated using a limited number of stimulus articles, particularly in the comparison between high- and low-CUE articles. Although this design provided an initial test of whether independent quality evaluations corresponded to prior CUE-based classifications, future studies should examine a wider range of health-news topics and article types. Second, the regression analyses should be interpreted as exploratory because of the relatively modest sample size of the expert group and the conceptual proximity between some CUE dimensions and the overall quality judgments used as outcomes. Finally, the engagement dimension represents the newest component of the framework. Although experts regarded it as relevant and useful, additional research is needed to refine its indicators and examine how consistently and meaningfully they capture engagement across different health topics, populations, and media contexts.

Despite these limitations, the present study suggests that contemporary health journalism may benefit from a broader and more integrated approach to quality assessment. Rather than replacing existing approaches, the CUE framework offers a complementary perspective that brings together credibility, understandability, and engagement to assess both medical and non-medical health reporting. In doing so, it highlights the role of journalistic quality in the public communication of health information.

## References


1. Bachmann P, Eisenegger M, Ingenhoff D (2022) Defining and measuring news media quality: Comparing the content perspective and the audience perspective. Int J Press/Politics 27(1):9–37
2. Bernstein JM, Lacy S (1992) Contextual coverage of government by local television news. Journalism Q 69(2):329–340
3. Bodle JV (1996) Assessing news quality: A comparison between community and student daily newspapers. Journalism Mass Communication Q 73(3):672–686
4. Covello V, Sandman PM (2001) Risk communication: Evolution and revolution. In: Wolbarst A (ed) Solutions to an environment in peril. Johns Hopkins University, Baltimore, MD, pp 164–178
5. Dalecki L, Lasorsa DL, Lewis SC (2009) The news readability problem. Journalism Pract 3(1):1–12. https://doi.org/10.1080/17512780802560708
6. DuBay WH (2004) The principles of readability. Impact Information, Costa Mesa, CA
7. DuBay WH (2006) Smart language: Readers, readability, and the grading of text. Impact Information, Costa Mesa, CA

8. Evensen DT, Clarke CE (2012) Efficacy information in media coverage of infectious disease risks: An ill predicament? Sci Communication 34(3):392–418
9. Fähnrich B, Weitkamp E, Kupper JF (2023) Exploring 'quality' in science communication online: Expert thoughts on how to assess and promote science communication quality in digital media contexts. Public Underst Sci 32(5):605–621. https://doi.org/10.1177/09636625221148054
10. Feinstein AR (1987) Clinimetric perspectives. J Chronic Dis 40(6):635–640
11. Fico F, Freedman E (2008) Biasing influences on balance in election news coverage: An assessment of newspaper coverage of the 2006 US Senate elections. Journalism Mass Communication Q 85(3):499–514
12. Fico F, Freedman E, Love B (2006) Partisan and structural balance in newspaper coverage of US senate races in 2004 with female nominees. Journalism Mass Communication Q 83(1):43–57
13. Fischhoff B (2013) The sciences of science communication. PNAS 110:14033–14039
14. Flesch R (1949) The art of readable writing. Harper, New York
15. Fowler G Jr. (1978) The comparative readability of newspapers and novels. Journalism Q 55(3):589–592
16. Gajardo C, Costera Meijer I (2023) How to tackle the conceptual inconsistency of audience engagement? The introduction of the Dynamic Model of Audience Engagement. Journalism 24(9):1959–1979. https://doi.org/10.1177/14648849221 080356
17. Gollust SE, Fowler EF, Niederdeppe J (2019) Television news coverage of public health issues and implications for public health policy and practice. Annu Rev Public Health 40:167–185
18. Greene K, Brinn LS (2003) Messages influencing college women's tanning bed use: Statistical versus narrative evidence format and a self-assessment to increase perceived susceptibility. J Health Communication 8:443–461. https://doi.org/10.1080/713852118
19. Gunning R (1952) The technique of clear writing. McGraw-Hill, New York
20. Jo Y, Lee C, Choi G, Cheon G (2020) The reliability of Korean text difficulty analysis program (KReaD). Korean J Lit Res 11(6):467–485
21. AUTHOR (YYYY) More sources create greater audience Engagement: An investigation into the relationship between the number of news sources and audience responses. *Communication Research* (Online first). https://doi.org/10.1177/009365022 51324549
22. You M, YYYY) (. Diagnostic or prognostic? Analyzing the news framing of H1N1 coverage in Korea (in Korean). Korean J Journalism Communication Stud, *55*(5), 30–54
23. Scherr AUTHOR, Arendt S, You F, M., Prieler M (YYYY). Little strokes fell big oaks: How repeated recommendations for suicide reporting drive the quality of suicide news in South Korea. *Omega*, 302228241228007. https://doi.org/10.1177/003022282412280 07
24. Lacy S, Rosenstiel T (2015) Defining and measuring quality journalism. Rutgers School of Communication and Information, New Brunswick, NJ
25. Lacy S, Sohn AB (1990) Correlations of newspaper content with circulation in the suburbs: A case study. Journalism Q 67(4):785–793

26. Lawler N, Carson A, Gravelle T, Brett A (2021) A media biopsy: Examining the quality of cancer reporting in Australia, 1997 and 2017. Health Commun 36(10):1216–1221. https:doi.org/10.1080/10410236.2020.1749352
27. Lee N, Oh SW, Cho B, Myung SK, Hwang SS, Yoon GH (2021) A health information quality assessment tool for Korean online newspaper articles: Development study. J Med Internet Res 23(7):e24436. https://doi.org/10.2196/24436
28. Lively B, Pressey S (1923) A method for measuring the vocabulary burden of textbooks. Educational Adm Superv 9:389–398
29. McQuail D (1992) Media performance: Mass communication and the public interest. Sage
30. Meyer P (2004) The vanishing newspaper: Saving journalism in the Information Age. University of Missouri, Columbia, MO
31. Moriarty CM, Stryker JE (2008) Prevention and screening efficacy messages in newspaper accounts of cancer. Health Educ Res 23(3):487–498. https://doi.org/10.1093/her/cyl163
32. Oxman AD, Guyatt GH, Cook DJ, Jaeschke R, Heddle N, Keller J (1993) An index of scientific quality for health reports in the lay press. J Clin Epidemiol 46(9):987–1001
33. Pengnate SF, Chen J, Young A (2021) Effects of clickbait headlines on user responses: An empirical investigation. J Int Technol Inform Manage 33(3):1–18. https://doi.org/10.58729/1941-6679.1440
34. Robinson A, Coutinho A, Bryden A, McKee M (2013) Analysis of health stories in daily newspapers in the UK. Public Health 127:39–45
35. Rögener W, Wormer H (2017) Defining criteria for good environmental journalism and testing their applicability: An environmental news review as a first step to more evidence based environmental science reporting. Public Underst Sci 26(4):418–433. https://doi.org/10.1177/0963662515597195
36. Rural Health Information Hub (2024), September 16 *Health communication*. https://www.ruralhealthinfo.org/toolkits/health-promotion/2/strategies/health-communication#:~:text=Health%20communication%20includes%20verbal%20and,changes%20in%20attitudes%20and%20behaviors
37. Salmon CT, Atkin C (2003) Using media campaigns for health promotion. In: Thompson TL, Dorsey AM, Miller KI, Parrott R (eds) Handbook of Health Communication. Lawrence Erlbaum, Mahwah, NJ, pp 285–313
38. Schönbach K (2000) Does tabloidization make German local newspapers successful? In: Sparks C, Tulloch J (eds) Tabloid tales: Global debates over media standards. Rowman and Littlefield, Lanham, MD, pp 63–74
39. Scott K (2023) Deceptive clickbait headlines: Relevance, intentions, and lies. *Journal of Pragmatics, 218*(2), 71–82. https://doi.10.1016/j.pragma.2023.10.004
40. Severin WJ, Tankard JW (1992) Communication theories: origins, methods, and uses in the mass media. Longman, New York
41. Shapiro I (2010) Evaluating journalism: Towards an assessment framework for the practice of journalism. Journalism Pract 4(2):143–162

42. Simon TF, Fico F, Lacy S (1989) Covering conflict and controversy: Measuring balance, fairness, defamation. *Journalism Quarterly*, *66*(2), 427–434. Teitelbaum, J., McGowan, A. K., Richmond, T. S., Kleinman, D. V., Pronk, N., Ochiai, E
43. Blakey C, Brewer KH (2021) Law and policy as tools in healthy people 2030. J Public Health Manage Pract 27(Suppl 6):S265–S273
44. Urban J, Schweiger W (2014) News quality from the recipients' perspective: Investigating recipients' ability to judge the normative quality of news. *Journalism Studies*, *15*(6), 821–840. Viswanath, K., Blake, K. D., Meissner, H. I., Saiontz, N. G., Mull, C., Freeman, C. S., Hesse
45. Croyle RT (2008) Occupational practices and the making of health news: A national survey of U.S. health and medical science journalists. J Health Communication 13(8):759–777. https://doi.org/10.1080/10810730802487430
46. Zebregs S, van den Putte B, Neijens P, de Graaf A (2015) The differential impact of statistical and narrative evidence on beliefs, attitude, and intention: A meta-analysis. *Health Communication, 30*, 282–289. https://doi.org/10.1080/10410236. 2013.842528
47. Zeldes GA, Fico F, Lacy S (2008) Context and sources in broadcast television coverage of the 2004 Democratic primary. Mass Communication Soc 11(3):340–346
48. Zeraatkar D, Obeda M, Ginsberg JS, Hirsh J (2017) The development and validation Of an instrument to measure the quality of health research reports in the lay media. BMC Public Health 17:343. https://doi.org/10.1186/s12889-017-4259-y
49. Zhou Y, Song Y, Tian J (2016) Risk perception of air pollution: An exploration of self- relevancy. Hum Ecol Risk Assessment: Int J 22(7):1506–1518