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The Adoption of Open Science Practices in Communication Research: Taking Stock of the Field in 2025

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Abstract

Five years after Dienlin et al.'s (2021) agenda-setting call for communication research to adopt open science practices, this study assesses the current state of adoption within the field. Through a manual content analysis of articles published in 2025 across 20 leading communication journals, we evaluated the use of Transparency and Openness Promotion (TOP) research practices. Results show that adoption remains limited. While research materials are shared more frequently, data and analytic code are rarely made available, and overall transparency remains inconsistent. Quantitative studies score higher on transparency indicators than qualitative studies, likely reflecting the limited applicability of TOP standards to qualitative research paradigms. Explicit discussion of deviations from preregistrations is present in approximately half of preregistered studies, and the absence of such discussion does not necessarily imply that deviations occurred. Yet room for improvement remains. We argue that voluntary adoption may be insufficient and discuss the need for stronger institutional incentives to establish open science as a normative standard.

Keywords

communication research; open science; preregistration; reproducibility; research transparency; TOP guidelines

1. Introduction

In the early 2020s, Dienlin et al. (2021) and Lewis (2020) issued agenda-setting calls for greater transparency and openness in communication research, outlining concrete steps toward adopting open science practices.

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In response, a growing body of work has examined both scholars' attitudes toward open science and the extent to which such practices (e.g., sharing of data and materials, preregistration, replication) are being implemented. Surveys and interviews suggest that communication researchers are generally supportive of open science (Bakker et al., 2021; Perreault & Dienlin, 2025). At the same time, scholars have identified structural and practical constraints that may hinder the implementation and uptake of these practices (Bakker et al., 2021; Fox et al., 2021; van Atteveldt et al., 2021; Xu & Zhang, 2024). Empirical assessments of research outputs further indicate that the adoption of open science practices remains slow and uneven (e.g., Breuer & Haim, 2024; Chan et al., 2024; Haim & Jungblut, 2023; Knöpfle et al., 2024; McEwan et al., 2018; Vermeulen et al., 2024). However, much of this evidence is now several years old (before 2020 when the field-wide discussion started in communication research) and often focuses on specific practices (such as data sharing or preregistration), on self-reported use (Bakker et al., 2021; Perreault & Dienlin, 2025), or specific parts of the discipline, leaving it unclear where the field currently stands. As a result, we lack a comprehensive and up-to-date assessment of the adoption of open science practices in communication research. This gap is consequential: Although open science has the potential to improve research efficiency, democratize knowledge, enhance credibility, and foster collaboration (Allen & Mehler, 2019; Arza & Fressoli, 2017; Sánchez-Tójar et al., 2026), these benefits depend on actual uptake. Therefore, five years after Dienlin et al.'s (2021) call to action, we assess the current state of open science practices across communication research.

Open science is a global movement aimed at increasing the transparency, accessibility, and reproducibility of scientific research and its outputs. While often associated with making research freely accessible (University of Cambridge, 2025), open science also encompasses practices that enhance the transparency and rigor of the research process, such as preregistration and the sharing of data, materials, and analytic code (Center for Open Science, 2025; Ramachandran et al., 2021). In this study, we focus specifically on these transparency-oriented practices, as formalized in the Transparency and Openness Promotion (TOP) guidelines. These guidelines provide standards for transparency in research and verification processes and specify concrete practices that researchers can implement to foster openness in science.

This study systematically analyzes 491 peer-reviewed articles published in 2025 across 20 leading communication journals (Song et al., 2020) to assess the extent to which open science practices are adopted. The sample spans both general communication journals and key subfields, including political, health, marketing, and entertainment communication, following prior work in the field (e.g., Bakker et al., 2021). Guided by the TOP guidelines—covering study registration, study protocols, analysis plans, and the transparency of materials, data, and analytic code (Center for Open Science, 2025)—we address the following research question:

> To what extent are TOP guidelines implemented in communication research?

By addressing this question, this study provides a comprehensive and up-to-date assessment of open science practices in communication research following Dienlin et al.'s (2021) agenda. Specifically, we identify where transparency practices are being implemented and where they remain limited. Mapping the current landscape of open science practices is essential for informed reflection on the state of the field and for guiding the development of infrastructures and resources that can further support transparency and openness in the years to come.

2. Theoretical Framework

2.1. TOP Research Practices in Articles

The move towards open science emerged as a contemporary effort to institutionalize transparency and openness in research practice, aiming to enhance its credibility, efficiency, and cumulative knowledge building. However, concerns about low reproducibility—meaning that the same results cannot always be obtained using the original data and analyses (Miske et al., 2026)—and replicability—meaning that similar studies with new data do not always yield comparable findings (Tyner et al., 2026)—have been documented in multiple scientific fields, including psychology (Open Science Collaboration, 2015) and other areas of the social sciences (Camerer et al., 2018; Klein et al., 2014). Given that communication research uses similar empirical designs and analytical approaches, the field is unlikely to be immune to these concerns. To counter this, open science practices have been promoted as mechanisms to improve the functioning of science, and more specifically of communication research, including the verifiability and robustness of research claims (Hicks, 2023).

TOP guidelines, developed by the Center for Open Science, provide journals with concrete standards and practical tools to promote open science adoption (B. A. Nosek et al., 2015). Previous research has examined uptake of TOP guidelines at the journal level, for example by evaluating journal policies or TOP Factor scores (e.g., Cashin et al., 2021; Spitschan et al., 2020). This adoption at the level of the journal is not always successful (e.g., Spitschan et al., 2020). Furthermore, this journal-level adoption of open science policies does not guarantee that individual articles actually implement these practices: Enforcing shared standards is hard, time-consuming, and subject to human errors. Conversely, researchers themselves can also voluntarily adopt open research practices without formal journal requirements: Researchers can share their data, make their materials open, use preregistration, or embrace replication even when journals do not require them to do this. However, the most recent assessment of communication research predates much of the contemporary open science debate: Haim and Jungblut (2023) employed machine-learning techniques to analyze publications across 20 leading communication journals (2010–2020), showing that open science principles were infrequently used in communication research, varied by method, and were substantially less common than in psychology. Others find that replication studies are rare (Breuer & Haim, 2024; McEwan et al., 2018; Vermeulen et al., 2024), but there are notable exceptions, such as a thematic issue on replication studies in the journal *Media and Communication*, which contained actual peer-reviewed replications (Lukito et al., 2024). Also, in expert surveys and interviews, scholars indicate that the uptake of open science practices is still low and that, while they are optimistic about their value, they also perceive barriers to implementing them in their research practices (Bakker et al., 2021; Perreault & Dienlin, 2025; Xu & Zhang, 2024). Given the field-wide calls for open science that have emerged since (Dienlin et al., 2021; Lewis, 2020), an updated assessment is needed to determine whether these calls have translated into changes in how research is conducted and reported.

This study particularly focuses on the adoption of six out of seven TOP research practices at the *article level*, because our interest lies in the extent to which open practices manifest at the level of individual articles. Table 1 provides an overview of the seven TOP research practices and the rationale for excluding the seventh research practice in the remainder of the study. Researchers make many choices during the research process, based on a variety of motivations (Wicherts et al., 2016). Likewise, they have the autonomy to decide whether

and to what extent they adopt the research practices specified by the TOP guidelines. As a result, the degree of transparency might vary: Researchers may not engage in a TOP research practice at all; researchers may state that they engaged in a research practice without providing evidence; or they may engage and publicly share verifiable evidence, including links to the materials (e.g., preregistrations with timestamps, open data, analytic code). In our study, we take an extra step to explore in more detail how transparency and openness are broadly communicated.

Table 1. TOP research practices definition.

Research Practice	Definition Based on Center for Open Science (2025)
Study Registration	Authors stated whether or not a study was registered and, if so, where and when it was registered (i.e., some sort of announcement that this study will be conducted).
Study Protocol	Authors stated whether or not the study protocol (e.g., planned research design, variables) is available and, if so, where and when it was shared.
Analysis Plan	Authors stated whether or not the analysis plan (e.g., planned analysis and variables) is available and, if so, where and when it was shared.
Materials Transparency	Authors stated whether or not research materials (e.g., codebook, stimuli, survey) are available and, if so, where.
Data Transparency	Authors stated whether or not data are available, and, if so, where.
Analytic Code Transparency	Authors stated whether or not analytic code is available, and, if so, where.
Reporting Transparency*	Authors stated whether or not they used a reporting guideline, and, if so, which guideline.

Note: * Since reporting guidelines have been developed primarily for biomedical and clinical disciplines, and are not widely adopted and recommended within communication research, we do not include this in the remainder of our study.

To establish a baseline understanding of the current adoption of TOP research practices in communication research, we ask:

RQ1: What is the prevalence of each TOP practice across articles?

Originally, we intended to explore the degree of alignment between journals' TOP Factor scores and their published articles' open science practices, by asking: What is the relationship between a journal's TOP Factor score and the average composite TOP research practices score of its published articles? We preregistered this as research question 2. The aim was to examine the relationship between a journal's TOP Factor score and the average composite TOP research practices score of its published articles. However, 11 of the 20 journals in our sample did not have a TOP Factor score. Moreover, as the Open Science Framework (OSF) discontinued updating TOP Factor scores in February 2025, we considered this indicator as outdated and no longer suitable as a current measure of journal-level open science practices. Because we did not foresee this at the time of preregistration and no alternative measure seems fitting, we did not explore this research question. To increase the flow of our article, we changed the labelling of the research questions that follow.

2.2. TOP Research Practices Across Research Methods

Essentially, quantitative and qualitative research differ in their epistemological orientations (Bryman, 2016, pp. 35–36), presenting distinct opportunities and barriers for open science. Experimental research, for instance, more readily accommodates preregistration and data sharing, while qualitative research faces greater challenges due to the contextual nature of data and closer participant relationships (Fox et al., 2021). It is worth noting in this context that the TOP guidelines were developed primarily for quantitative research paradigms, which may limit their applicability to qualitative approaches. Accordingly, the field of qualitative research is divided regarding the extent to which the adoption of open research practices is possible. While some scholars see possibilities for open research practices such as preregistration (e.g., Haven & Grootel, 2019), others see greater concerns, especially regarding data sharing (DuBois et al., 2018). Similarly, disparities also exist within quantitative approaches: Computational methods may seem ideally suited for reproducibility, yet researchers face barriers related to privacy-sensitive and proprietary data (van Atteveldt et al., 2019). These differences suggest that the adoption of TOP-guideline practices may vary substantially across methods, with some approaches leading to adoption while others continue to face persistent challenges. To better understand these differences, we ask:

RQ2: How does the implementation of TOP guidelines differ by method?

2.3. Transparency in Research Materials Reporting

Prior work suggests that material sharing can enhance transparency, facilitate reproducibility, and support cumulative impact of scholarly research (Bowman & Spence, 2020). Thus, open materials are a crucial step towards open science, and refer to the practice of making research materials, such as experimental stimuli, survey instruments, and coding books, freely accessible to anyone interested, without requiring additional action from the researchers (Bowman & Spence, 2020; Parsons et al., 2022).

The TOP guidelines' materials transparency practice captures how transparently researchers report on sharing, ranging from brief mentions within the text to full public availability via repositories such as OSF. While detailed descriptions in the methods sections are standard practice in communication research (Bowman & Keene, 2018), such descriptions are a step away from making materials accessible for independent inspection and reuse, which is the backbone of open science research practices. Building on the fourth TOP research practice, we want to further understand both the extent to which various research materials are shared and how they are reported. Therefore, we ask:

RQ3: How is the transparency of various research materials discussed?

2.4. Deviations From Preregistration

Preregistration requires researchers to specify hypotheses, study design, and analysis plan in an official registry prior to data collection or, in some cases, prior to data analysis (B. A. Nosek et al., 2018). Its primary value lies in constraining researchers' degrees of freedom, protecting against questionable research practices such as HARKing and *p*-hacking, and distinguishing confirmatory from exploratory analyses (e.g., Schäfer & Schwarz, 2019; van den Akker et al., 2024). However, its value depends critically on transparent reporting of

deviations from the original plan (Lakens, 2024). Research suggests that many deviations remain unreported, undermining the credibility benefits preregistration is meant to provide (Willroth & Atherton, 2024), namely, distinguishing confirmatory from exploratory analyses. Various scholars developed frameworks that can guide researchers on when and how to deviate from preregistrations and, crucially, how to communicate such deviations transparently (e.g., Lakens, 2024; Willroth & Atherton, 2024). To provide initial insight into whether and how researchers within the field of communication research explicitly address deviations, we pose the exploratory question:

RQ4: When preregistration is present, how are deviations from the research plan discussed?

3. Methodology

The study was approved by the Ethical Review Board of the authors' institution and was preregistered on OSF, including the protocol and analysis plan (https://osf.io/bsv4k/files/osfstorage/691dd175ea60df3758957c3e).

3.1. Sampling Procedure

Our sample was derived from the top 20 communication research journals, based on the typology of Song et al. (2020), who employed a core journal sampling strategy by selecting outlets that ranked among the top 10 in the Web of Science Communication category between 2010 and 2017. This approach is justified as capturing the intellectual center of the field, ensuring a broadly representative mix of high-impact general and specialized journals while remaining feasible for systematic analysis. Others have adopted the selection of Song et al. (2020) in studies of open science practices in communication research (Bakker et al., 2021). The sample included articles from 20 leading journals: *Journal of Communication*, *Journal of Computer-Mediated Communication*, *Human Communication Research*, *Communication Monographs*, *Communication Research*, *Public Opinion Quarterly*, *Public Understanding of Science*, *Cyberpsychology, Behavior, and Social Networking*, *Research on Language and Social Interaction*, *Science Communication*, *International Journal of Advertising*, *Political Communication*, *Journal of Health Communication*, *New Media & Society*, *Management Communication Quarterly*, *International Journal of Press/Politics*, *Communication Theory*, *Journal of Advertising*, *Information, Communication & Society*, and *Media Psychology*.

We acknowledge that no list is exhaustive, and this is true for this list as well. Alternative selection criteria might yield a different set of journals. Nevertheless, we follow a pragmatic approach by building on prior work in the field. Whether our findings generalize beyond the selected journals remains an empirical question. To provide the most recent overview of the state of open science practices in communication research, this study included articles published in 2025. Individual journal articles serve as the unit of analysis, as this study aims to assess open science adoption at the level of published research rather than journal policies.

The general population of articles published in the 20 journals during 2025 is 1,078. This study aimed to include 30 empirical articles per journal, yielding a target sample of 600 articles. For each journal, articles published on or after January 1, 2025, were chronologically sampled until 30 articles were reached. In case journals had fewer than 30 articles published by the time of sampling, only available articles were included (see Figure 1 for an overview of the sampling funnel). The inclusion criteria for analysis are empirical

quantitative, qualitative, and mixed methods articles. As not all journals published 30 articles this year, we ended up with a sample of 542 coded articles. As the sampling procedure included a filter question on research method, this sample also included non-empirical articles (e.g., literature reviews, conceptual papers, research notes). To meet the inclusion criteria, non-empirical articles were subsequently excluded from this sample, as open science practices generally require different approaches in those cases or may not be applicable. In total, the final sample consisted of $N = 491$ eligible scientific articles for answering the stated research questions about TOP practices, which is 45.5% of the population. An overview of the number of published articles and the number of coded articles is provided on OSF (https://osf.io/bsv4k/files/osfstorage/6a04516cacd3b5d893c3f6ef).

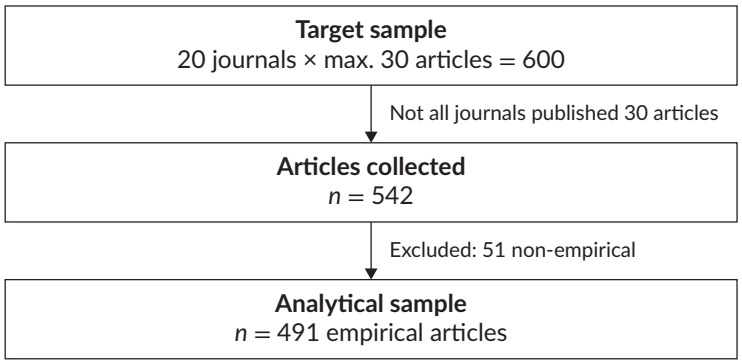

Figure 1. Sampling funnel.

3.2. Coding Instrument

The codebook is provided on OSF (https://osf.io/bsv4k/files/osfstorage/6a041cfd9686ec5410c3fb07).

3.2.1. TOP Research Practices

To operationalize the adoption of open science practices, the *TOP Research Practices Transparency Standards* were used, as provided on the website of the Center for Open Science (see https://www.cos.io/initiatives/top-guidelines). The 7th research practice, which is "reporting transparency," was excluded because formal reporting guidelines (e.g., CONSORT, STROBE) are almost never used in communication research and thus would result in no meaningful results. The research practices "study registration" and "study protocol" are operationalized as a single indicator, since these two always go hand-in-hand within communication research, unlike in, for example, the medical field. During the coding procedure, no article was found to meet only one of the two practices, confirming their interdependence. The specific items that operationalize the TOP research practices are study registration and protocol, analysis plan, materials transparency, data transparency, and analytic code transparency. See Table 1 for an overview of the research practices. Moreover, for each research practice, we coded how transparency was communicated. This included whether researchers provided links to materials or preregistrations, included materials in appendices, or employed other sharing methods. In case when materials were not shared, we coded whether researchers provided a justification for non-disclosure or offered no explanation. For each material type, availability was coded into mutually exclusive categories. As an example, "external platform" was assigned only when all materials of that type were fully shared via an external repository, while "partly available" was assigned when only a portion was shared, regardless of where. Specific coding categories for each research practice are detailed in the results section.

3.2.2. Method Classification

Each article's primary research method used was coded, such that pretests (pilot manipulations or survey pretests) were ignored for classification purposes. Although experiments can be part of, for example, surveys or content analysis, we treated experiments as a distinct category due to their defining feature of manipulating conditions, which enables causal inference and differentiates them from non-experimental approaches. At the same time, articles comprising multiple studies (e.g., Study 1 and Study 2) that employed distinct primary methods (e.g., one experiment and one survey) were classified under the appropriate mixed methods categories, depending on the combination of approaches used. Eventually, the following categories were used in the codebook: experiment, survey, content analysis (quantitative or computational), qualitative content analysis, mixed methods quantitative, mixed methods qualitative, mixed methods quantitative and qualitative, interview or focus group, meta-analysis, ethnographical study, and "other, please specify."

Overall, the most common methods were experiments (n = 148) and surveys (n = 103), whereas the least common was mixed qualitative methods (n = 10).

3.2.3. Other Variables

Other variables that were coded included journal name, article name, open access status (44.4% published open access), funding details, and CRediT roles (mentioned yes/no; from the 444 articles with multiple authors, only 8 articles, which equals 1.80%, specified the roles). At the very end of the codebook, there was a text field for notable comments in relation to open science research practices, remaining open to unexpected qualitative insights.

3.3. Procedure and Reliability

The coding procedure was standardized via the preregistered codebook. Four coders were trained over the three sessions led by the first author. Here, the codebook was discussed, refined, and practice coding was conducted to ensure all coders were on a similar understanding. The codebook started with general items about the article name, journal, method used, then the TOP research practices, and eventually funding details, CRediT roles, and a space to leave some final remarks. Intercoder reliability was assessed on a set of 25 academic articles (~5–10%). In the preregistration, we specified that the results would be considered satisfactory if the standardized Lotus was above .60—a measure specifically suited to skewed nominal variables with low prevalence of positive codes (Aaldering & Vliegenthart, 2016; Fretwurst, 2015). Compared to Lotus, Krippendorff's alpha may be too strict when having multiple coders (Fretwurst, 2015); however, we also report Krippendorff's alpha as a robustness check. All research practices scored high on reliability, with a standardized Lotus of .99 for study registration and protocol (Krippendorff's α = .99), .95 for analysis plan (Krippendorff's α = .89), .89 for materials transparency (Krippendorff's α = .59), .98 for data transparency (Krippendorff's α = .97), and .93 for analytic code transparency (Krippendorff's α = .81). Krippendorff's alpha values were satisfactory across all key variables, with the exception of materials transparency (α = .59), which fell slightly below the threshold of .60 (Krippendorff, 2004). This lower value is attributable to the skewed distribution of this variable rather than genuine coder disagreement, as reflected in the consistently high standardized Lotus coefficient (.89) for the same variable. Where alpha values appear lower, notably for deviations from preregistration and CRediT roles, this reflects the low prevalence

of positive codes rather than genuine coder disagreement. On OSF (https://osf.io/bsv4k/files/osfstorage/6a04516d57ac5e1d83bcbd3f), reliability scores for the remaining variables are reported.

3.4. TOP Research Practices Composite Score

We created a composite TOP research practices score based on the six coded TOP research practices to assess the overall openness and transparency of a specific article. Due to variations in TOP practice response formats, all items were rescaled prior to aggregation. Three practices, namely analysis plan (TOP practice 3), data transparency (TOP practice 5), and analytical code transparency (TOP practice 6), were measured separately and recoded into dichotomous variables (0 = practice not met, 1 = practice met). Study registration (TOP practice 1) and study protocol (TOP practice 2), on the other hand, were measured as a combined item, which was also recoded into a dichotomous variable (0 = practice not met, 2 = practice met), while receiving a double weight. Scoring them as a combined 2-point item ensures their joint contribution is weighted equivalently to the other practices in the index score, rather than being undervalued by a single point. A research practice was considered met when an answer category truly indicated relevant actions to (pre)register or information sharing. Additionally, materials transparency (TOP practice 4) was scored proportionally from 0 to 1, based on the proportion of materials shared relative to total materials used in the study. For example, an article using both stimuli and a questionnaire that shared only the stimuli received a score of 0.5. This captures the degree to which materials are more specific rather than reducing this to a binary judgment (everything disclosed vs. not all/nothing disclosed). The resulting composite score ranged from 0 (*no TOP research practices met*) up to 6 (*all TOP research practices met*), with higher scores indicating greater adherence to open science research practices.

4. Results

4.1. TOP Research Practices in Articles

RQ1 examines the prevalence of each of the TOP practices across scientific articles. Regarding the first two TOP research practices, study registration and protocol, only a small proportion of articles provided verifiable evidence of preregistration, while the vast majority made no reference to preregistration or study protocols. Out of the total pool of articles, only 9.4% ($n = 46$) provided a link to the study preregistration. In three cases, articles claimed to be preregistered; however, no corresponding preregistration could be retrieved. More than 90% of the articles ($n = 442$) were not preregistered. Table 2 provides a detailed overview of the first two TOP research practices adoption.

The third TOP research practice examined whether the article provides an analysis plan a priori. Regarding the transparency and openness, less than 10% of the articles actually provide a link to the analysis plan. Detailed results regarding the analysis plan availability are presented in Table 2. A chi-square test of independence was performed to assess the relationship between study registration and protocol (combined) and analysis plan. There is a strong, statistically significant relationship between the research practices, $\chi^2(4, n = 491) = 519.2$, $p < .001$, Cramer's $V = .73$. Studies that made and shared a study registration and protocol were substantially more likely to also share an analysis plan. Specifically, of the 46 articles in which study registration and protocol were met, 43 (93.5%) also provided an analysis plan.

Table 2. TOP research practices 1–3.

Level of Transparency and Openness	Research Practices 1 and 2: Study Registration and Protocol	Research Practice 3: Analysis Plan
	% (*n*)	% (*n*)
The study provides a link to the preregistration/analysis plan	9.4 (46)	9.0 (44)
The study was stated to be preregistered/have a predefined analysis plan, but no link to document was provided	0.6 (3)	0.6 (3)
No indication of preregistration/analysis plan was provided	90.0 (442)	90.4 (444)

The fourth TOP research practice examined is materials transparency. Across all coded articles, a total of 931 research materials were identified as important to the transparency and openness of the study. While some studies ($n = 12$) did not use any research materials (e.g., qualitative discourse analysis), others relied on multiple materials, with up to four distinct material components in mixed method designs (e.g., questionnaires, experimental stimuli, codebooks, and search strings). Regardless of the number of materials used, 180 articles fully disclosed all their materials, 114 articles disclosed some of their materials, and 185 articles disclosed none of their materials.

When focusing on the materials generally, 60.1% of the research materials were openly accessible, either via the article or appendix, or via an external repository. Detailed information on material availability is reported in Table 3.

Table 3. TOP research practice 4: materials transparency.

Level of Transparency and Openness	% (*n*)
Materials are available via a link to an external platform (e.g., OSF, GitHub)	21.5 (200)
Materials are available within article or appendix	30.6 (285)
Materials are partly available	8.0 (74)
Materials are not available with justification (e.g., for sake of privacy)	1.9 (18)
Materials are not available without justification or mention	37.0 (344)
Materials are only available upon request	0.3 (3)
The study claimed materials were available, but they were not retrievable	0.8 (7)

Notes: This table presents the extent to which materials of any sort are shared; Section 4.2 provides more details specific to each material.

The fifth TOP research practice examined was data transparency, focusing on both the public availability of data and how this was communicated. Results showed that at least partial data availability was reported in 21.2% of articles, whereas more than half did not mention anything about data availability. Detailed distributions of data transparency are presented in Table 4.

Table 4. TOP research practice 5: data transparency.

Data Disclosure	Level of Transparency and Openness	% (*n*)
Yes	Communicating they share raw data publicly (all parts)	18.3 (90)
	Communicating they partly share the raw data publicly, with justification for unshared parts	0.2 (1)
	Communicating they partly share the raw data publicly, without justification for unshared parts	1.8 (9)
	Communicating they partly share the raw data publicly, while other parts of the data are available upon request	0.8 (4)
	Total	**21.2 (104)**
No	No reasoning or mentioning about data sharing	54.8 (269)
	Communicating why data sharing is not possible	4.5 (22)
	Data only upon request with reasoning	6.3 (31)
	Data only upon request without reasoning	11.4 (56)
	Communicating that data are available but in practice not retrievable	1.8 (9)
	Total	**78.8 (387)**

Finally, the sixth research practice examined was analytic code transparency. The code was reported as fully or partially available in 16.3% of the articles. See Table 5 for more details about analytic code transparency. A chi-square test of independence was performed to assess the relationship between data sharing (research practice 5) and analytic code transparency. There is a strong, statistically significant relationship between the research practices, $\chi^2(6, n = 491) = 260.5$, $p < .001$, Cramer's $V = .73$. Specifically, studies that shared the data were more likely to also share the analytic code.

Table 5. TOP research practice 6: analytic code transparency.

Level of Transparency and Openness	% (*n*)
Analytic code available via link or appendix	15.7 (77)
Analytic code partly available	1.2 (6)
Analytic code available upon request only	0.6 (3)
Analytic code unavailable with justification	0.2 (1)
Analytic code unavailable without justification	59.5 (292)
Analytic code stated as available but not retrievable	0.6 (3)
Not applicable (e.g., qualitative discourse analysis)	22.2 (109)

Eventually, a composite score was calculated to capture the overall extent of transparency and openness at the article level. The minimum composite TOP score was measured on a scale from 0 (*not transparent and open*) to 6 (*very transparent and open*). The mean composite TOP score was 1.15 ($SD = 1.54$, $Mdn = 0.67$, $Mode = 0.00$), indicating generally low levels of adopting the transparency and openness research practices. When comparing the designs, a one-way ANOVA with Welch correction was conducted, given a violation of homogeneity of variances (Levene's test: $F(2, 488) = 23.15$, $p < .001$). Tukey post-hoc comparisons showed that quantitative studies ($M = 1.46$, $SD = 1.71$) scored significantly higher than qualitative studies ($M = 0.30$, $SD = 0.51$), $p < .001$, and significantly higher than mixed studies ($M = 0.67$, $SD = 0.80$), $p = .001$. The difference between qualitative and mixed studies was not significant, $p = .300$.

4.2. TOP Research Practices Across Research Methods

To address RQ2, differences in TOP research practice implementation were examined across methods using the composite TOP score. As shown in Figure 2, experiments are the most transparent, although still scoring on the lower end. Furthermore, studies employing quantitative methods exhibited higher levels of adopting TOP research practices than qualitatively grounded studies. Exact composite scores and standard deviations are available on OSF (https://osf.io/bsv4k/files/osfstorage/69f1db4f5a0bcf6795d952ba).

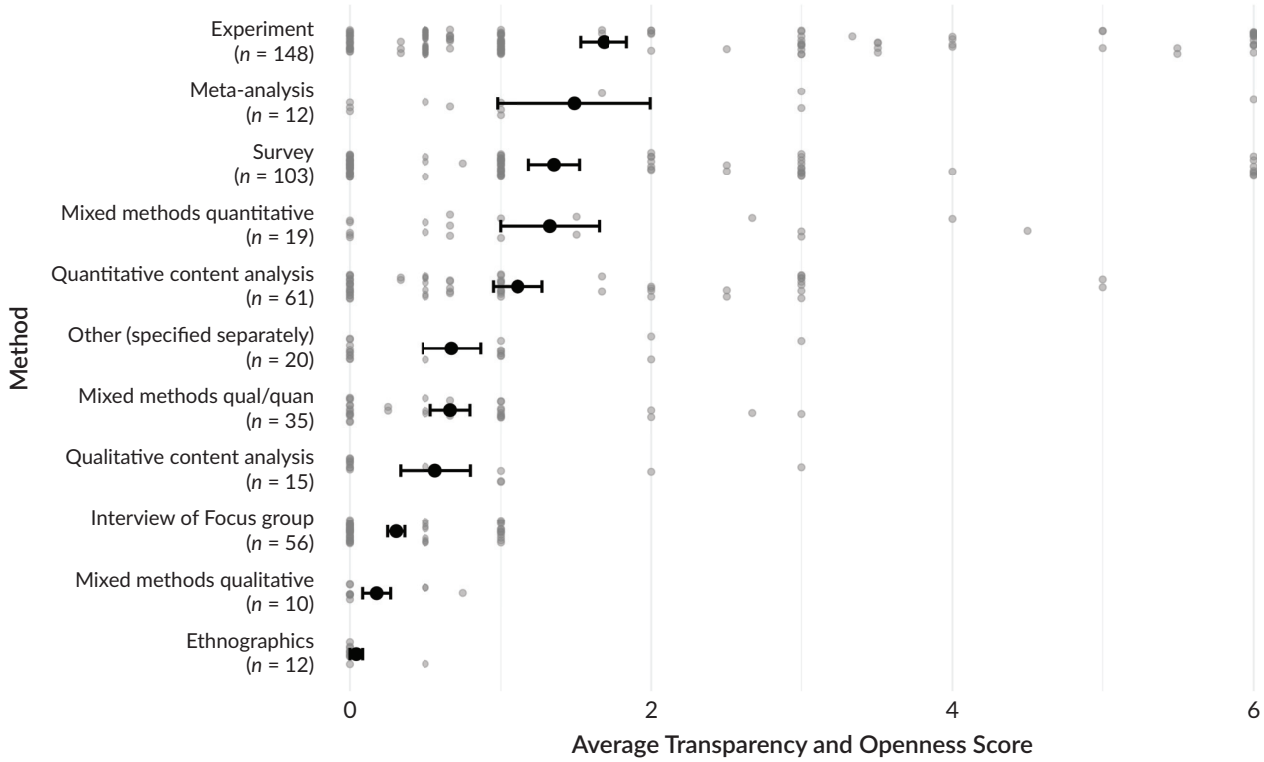

Figure 2. TOP composite score by method. Notes: Bars indicate standard error; dots indicate the individual data points.

4.3. Transparency in Research Materials Reporting

To address RQ3, the transparency of research materials was examined by assessing the availability of each type of material separately. As shown in Figure 3 (exact values available on OSF: https://osf.io/bsv4k/files/osfstorage/69f1d7edd85c401608a7ce42), stimulus materials were most frequently made openly available (81.4% complete or partly available), whereas materials commonly used in qualitative research, such as observation protocols and interview guides, were shared less often, and mostly without justification for why the materials were not shared.

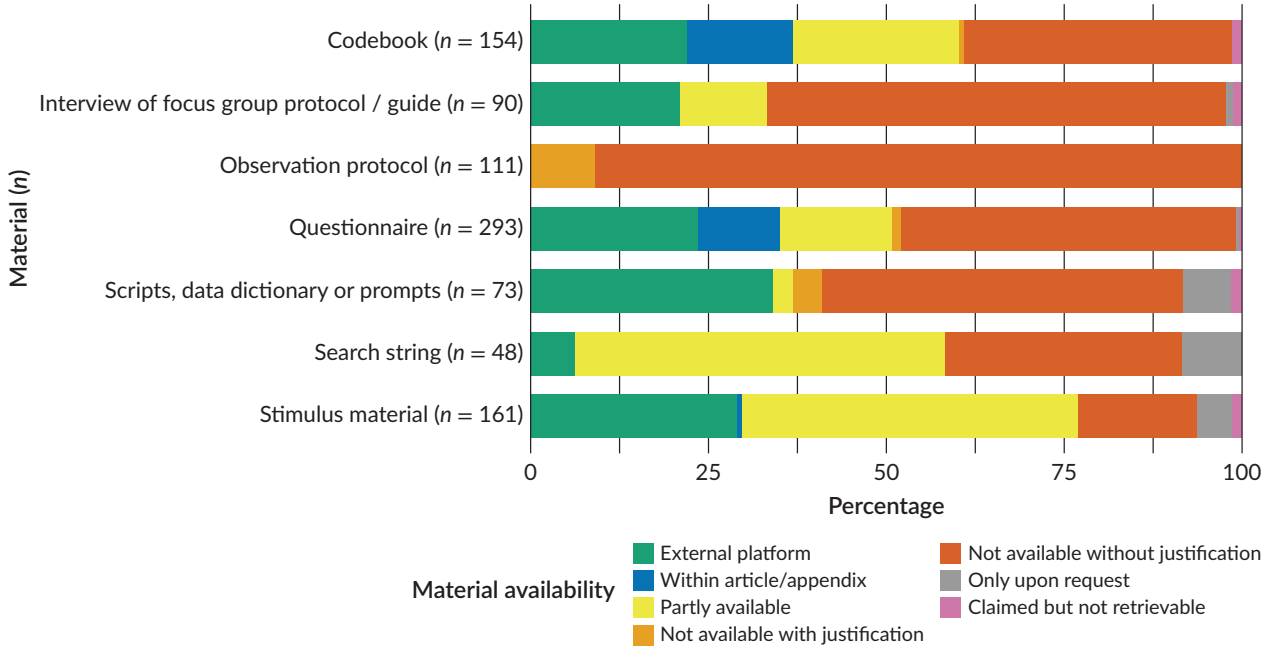

Figure 3. Transparency of materials.

4.4. Deviations From Preregistration

To answer the research question concerning how deviations from the preregistered research plan were reported, this study found that from the 46 studies that were verifiably preregistered, 21 (45.7%) did not discuss deviations from the preregistration. This does not imply that these studies necessarily deviated from their preregistration. It does reflect the absence of an explicit discussion, which may simply indicate that no deviations occurred or that authors did not consider reporting this necessary. Sixteen studies (34.8%) discussed deviations in the research paper, and nine (19.6%) explicitly mentioned that deviations were documented in an external source, such as OSF or GitHub. One study did not refer to deviations, although they published the deviations in an external repository.

5. Discussion and Conclusion

This content analysis aimed to assess the current state of open science practices in communication research. Our findings show that, despite sustained discussion and advocacy, the adoption of these practices remains limited. In particular, a priori transparency practices such as preregistration are still rare, while the sharing of data and analytic code lags behind the more common, though still inconsistent, sharing of research materials. Moreover, many articles do not provide any justification for non-disclosure. Taken together, these findings suggest that open science practices in 2025 remain more aspirational than routine within the field of communication.

A central observation is that transparent a priori practices are especially underutilized. Relating to the first three TOP research practices, 90.0% of the articles in our sample did not indicate preregistration or share an a priori analysis plan. This is consistent with earlier work (e.g., Bakker et al., 2021; Dienlin et al., 2021), despite continued calls to adopt preregistration (e.g., B. A. Nosek et al., 2018). Prior research suggests that

scholars may perceive such practices as obstacles (Bakker et al., 2021; Perreault & Dienlin, 2025; Sarafoglou et al., 2022). However, we argue that the primary barrier is not feasibility but normalization, at least for confirmatory quantitative research, for which preregistration is most clearly applicable. Infrastructures for preregistration are readily available, and although the practice requires an upfront investment of time, it can improve research planning and reduce unforeseen analytic complications. For genuinely exploratory or qualitative research, preregistration may not be necessary, though authors should be transparent about the exploratory nature of their work. Ultimately, a priori transparency is essential for the credibility and trustworthiness of science (Song et al., 2022).

The underutilization of transparency practices extends beyond preregistration to later stages of the research process. While approximately three-fifths of the articles shared research materials to some extent, only around one-fifth shared data, and analytic code was shared in just 15.7% of cases. This imbalance is consequential, as data and code availability are central to the reproducibility of scientific findings. Recent work shows that journals with data availability policies have substantially higher reproducibility rates than those without such policies (Miske et al., 2026). This suggests that institutional interventions—such as mandatory data policies and the involvement of data editors, as implemented by journals such as *Political Communication*—may be effective mechanisms for increasing transparency.

Importantly, transparency and openness are not limited to the act of sharing itself. A frequently overlooked component is the explicit justification for non-disclosure. In cases where data, materials, or code cannot be shared due to ethical, legal, or practical constraints, clearly communicating these limitations is an essential aspect of open science. However, our findings indicate that such justifications are often absent: More than half of the articles did not provide a reason for not sharing data, and over a third did not comment on the absence of shared materials. Given that providing a justification requires minimal effort, this represents a straightforward opportunity for improvement, for example through mandatory data and materials availability statements.

At the same time, transparency practices vary across methodological approaches. Qualitative research, in particular, shows lower scores on TOP-based indicators compared to quantitative research. This difference should be interpreted with caution, as TOP standards were primarily developed with quantitative paradigms in mind and may not fully capture forms of transparency that are meaningful or feasible in qualitative work. As discussed in the literature (e.g., Branney et al., 2023; Fox et al., 2021), qualitative research faces distinct challenges, including context-specific ethical constraints and greater researcher degrees of freedom. Rather than interpreting lower scores as a lack of transparency, these findings highlight the need for tailored open science practices that better align with qualitative epistemologies. Journals with a qualitative focus may play a key role in developing such guidance. More broadly, this invites reflection on whether open science practices should be seen as a golden standard. As Fox et al. (2021) argue, framing open science as the standard for credible scholarship risks marginalizing researchers who work in qualitative and interpretive traditions, and may prioritize openness over the safety of (vulnerable) research participants. Our findings should therefore not be read as a straightforward call for universal adoption of TOP standards, but as a prompt to critically examine for whom these standards are designed.

Another underutilized aspect of open science concerns the reporting of deviations from preregistration. While preregistration is intended to distinguish confirmatory from exploratory analyses, deviations from the original plan are often unavoidable and should not be viewed as problematic (Lakens et al., 2024). While reporting

deviations is not yet universal, our findings suggest that approximately half of preregistered studies did address deviations in some form. For the remaining studies, it remains unclear whether a discussion was warranted, as authors may simply have followed their preregistration closely. These findings partially contrast with Claesen et al. (2021), who showed that only a small minority disclosed deviations. This may suggest that reflecting on preregistrations has improved somewhat, though room for further progress remains.

To support this progress, preregistration should be paired with a norm of explicitly reporting deviations. A simple and low-burden solution would be for journals to require a brief statement in which authors confirm whether deviations occurred and, if so, describe them. Finally, it should be noted that our coding captures only whether deviations were explicitly discussed, not whether they actually occurred: Authors who did not mention deviations may simply have followed their preregistration closely. Future research could address this limitation by systematically comparing preregistration documents with published articles, for example using automated tools such as RegCheck (Cummins et al., 2026), which offers a promising and scalable approach to deviation detection.

A central contribution of this study is to show that the adoption of open science practices in communication research remains limited, despite extensive discourse and generally positive attitudes among scholars (Bakker et al., 2021). This suggests that voluntary uptake alone is insufficient to bring about substantial change. Instead, more structural interventions may be necessary. The Center for Open Science's Strategy for Culture Change (B. Nosek, 2025) offers a useful framework. It identifies interdependent levels at which change can be pursued, spanning individual researchers, infrastructure, institutional norms, funding incentives, and policy. This framework underscores that change requires coordinated action and support—a point that resonates with scholars who have pointed to the lack of standardization and perceived incompatibility with existing workflows as barriers to adoption (Bowman et al., 2022). To overcome these challenges, publishers, editors, and editorial boards may need to take a more directive role by establishing clear expectations and integrating transparency requirements into the publication process.

One practical implication is that transparency should become the default rather than the exception. This could involve requiring authors to provide links to preregistrations, data, materials, and code, or to justify non-disclosure, in a standardized disclosure form similar to conflict-of-interest statements. A compulsory transparency checklist could be a starting point (Aczel et al., 2020). More broadly, however, achieving meaningful change will require a shift in how research is conducted and reported, in which openness about the research process becomes standard practice.

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Conflict of Interests

The authors declare no conflicts of interests.

Data Availability

The data and analytic code are openly available on OSF (https://osf.io/bsv4k/files/osfstorage/698d7e6ca0f23f2729dfc5b4 and https://osf.io/bsv4k/files/osfstorage/698d7e61d2353b62d6e25395).

LLMs Disclosure

Anthropic's Claude Opus 4.5 was used exclusively for the generation of a helper function for an R script.

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