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Rigor, Transparency, and Reporting Social Science Research: Why Guidelines Don't Have to Kill Your Story

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Abstract

Dissemination of research is the most challenging aspect of building the evidence base. Despite peer-review, evidence suggests that a substantial proportion of papers leave out details that are necessary to judge bias, consider replication, or initiate meta-analyses and systematic reviews. Reporting guidelines were created to ensure minimally adequate reporting of research and have become increasingly popular since the 1990s. There are over 200 guidelines for authors to assist in reporting a range of study methodologies. Although guidelines are freely available, they are underutilized and there is criticism regarding assumptions about methodologies targeted by guidelines. As journal editors lean into endorsements, social work authors may benefit from considering guidelines appropriate for their work. This paper explores pros and cons of guideline use by authors and journals and presents some suggestions for the field of social work, including assessment of whether profession-specific reporting guidelines are needed, and cautions regarding limitations.

Keywords

Reporting guidelines; Publication; Research; Social Work

Most authors enjoy the research part, because it is, after all, easier than writing.

–Ken Follett

Few social scientists would argue that the hardest part of research is dissemination. Peer-reviewed publication in journals like this one and national conference presentations are the currency of academia, but moving from the overwhelming excitement of digging into your findings or exploring your data to getting it into press is a daunting task. Identifying a journal that is a good fit for your paper is the first challenging task, and most academics that I know tend to make a list of first choice, second choice, third choice and so on, so that if a paper is rejected there is a plan for revising and submitting to the next journal on the list. It does not help matters that journals vary so widely in their formats, writing styles, and instructions to authors. With hundreds of options ranging from remarkably specific to broadly field-based, journals are the primary mechanisms through which we bring our research to the public. Through publication, we honor our participants and the complexities

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of their lived experiences by sharing our findings to improve the greater good and our data become available for supporting policy decisions, improving the practice field, and informing the structure of programs and interventions (Bronstein & Kovacs, 2013; Gardner et al., 2013; Kac & Hirst, 2011; PLOS Medicine Editors, 2013).

Failure to adequately, transparently, and rigorously report findings of research has been described as a form of scientific failure that can lead to inappropriate treatment decisions, among other things (Chalmers, 1990; PLOS Medicine Editors, 2013). Yet, despite common agreement that evidence is critical for a range of stakeholders and to advancing policy, practice, and further research, the rigor and transparency with which we report that evidence varies so widely that it may be a hindrance-preventing promising evidence from being put to use as part of the knowledge base. Unacknowledged biases, inability to replicate due to missing information, or lack of clarity around context “can be dangerously misleading to policy decisions” (Kac & Hirst, 2011, p.1872). Poor reporting and dissemination of information contributes to the gap between research production and implementation in clinical practice (Mullen, Bledsoe, & Bellamy, 2007). This paper will examine some of the arguments for and against reporting guidelines, survey some of the most commonly used and how to access them via the EQUATOR Network, and argue that structure and rigor do not have to be to the detriment of good writing. Although editorial concept papers such as this one are not covered by reporting guidelines in the same way as intervention research, the SQUIRE guideline was consulted for major areas of importance to be addressed (Davidoff, Batalden, Stevens, Ogrinc, & Mooney, 2008).

The Development of and Argument for Reporting Guidelines

Although few realize it now, the familiar standard format of Introduction, Methods, Results and Discussion is an outgrowth of the development of reporting guidelines (Altman, 2015). While guidelines have existed at least as early as the 1980s (Mosser, 1980), organized calls for guidelines seem to have begun in the early 1990s, and medical journals began publishing suggested formats, such as the SORT (Standards of Reporting Trials). While the SORT (a precursor to the CONSORT tool) specifically focused on experimental clinical trials, the idea of structuring publications so that detailed information about design, methodology, potential biases and limitations, and analyses was one that resonated with researchers across the professional spectrum. Over the next 20 years, over 200 guidelines for reporting various types of research appeared, with the aim of setting a baseline minimum standard of information needed. The minimum standard was called for to ensure transparent reporting, facilitate clinical judgment of potential biases in the findings, support replicability of studies, and provide data for systematic reviews and meta-analyses (Cobo et al., 2011; Kac & Hirst, 2011; Simera, Altman, Moher, Schulz, & Hoey, 2008; Stevens et al., 2014).

By 2006, it was apparent that organization and assessment of the rapid development in this area was necessary (EQUATOR Network, 2015b). Looking to the Cochrane Collaboration as a model, the National Health Service of the UK funded a one-year project aimed at mapping all ongoing activities related to the creation or dissemination of reporting guidelines and bringing key stakeholders together. The participants included journal editors in the health sciences and members of their peer review groups, researchers who were attempting to

disseminate guidelines, and funders; they named the initiative the EQUATOR (Enhancing the QUALity and Transparency Of health Research) Network. Their aims were lofty: “to seek to improve the reliability and value of published health research literature by promoting transparent and accurate reporting and wider use of robust reporting guidelines... (and) to tackle the problems of inadequate reporting systematically and on a global scale” (EQUATOR Network, 2015b). The group identified seven major goals (See Table 1) and established what would be needed to feasibly reach them. By 2008, the Network, with broader funding sources, officially announced its launch in London and by 2014 there were network groups established in the UK, France, and Canada that focused on regional dissemination and training, using an online and freely accessible library to support their efforts.

Supporters of the network proposed that “complete, accurate and transparent reporting is an integral part of responsible research conduct... (an effort that) needs to be strongly supported by research funders and regulatory bodies” and that high standards could only be achieved by the introduction of minimum standards that would be routinely used by researchers as they sought to publish their findings (EQUATOR Network, 2015a). Altman (2015) points out that most journal publications of research are written in a narrative format, implying that such writing may lead to the inadvertent skipping of critical information for the reader, or that such information is generally difficult to locate in text narratives (p.2). This sentiment is not uncommon, with advocates of guidelines reporting that clarity of reporting can change the level of impact that findings may have on policy and practice arenas, or that authors may imply more impact than is appropriate. They argue that peer-review alone is not sufficient for ensuring the needed transparency in research dissemination (Cobo et al., 2011; Hirst & Altman, 2012; Tao et al., 2011).

While most advocates fall short of insisting on concretely structured and inflexible templates, they assert that flow charts, tables, and graphics that contain vital methodological information is a worthwhile addition. Journal editors across the healthcare spectrum assert that “guidelines and checklists for reporting scientific studies are not just tick-box exercises” (PLOS Medicine Editors, 2013, p.1) and that availability of a wide range of frameworks to fit various study types has made it possible to ensure that presentation of studies covers the spectrum of minimally necessary information, while not restricting authors to a clinical reporting note type of structure. Bronstein and Kovachs (2013) assert that clear reporting that is accessible to social work practitioners and policy makers has the ability to “move the social work field forward” (p.6).

The Arguments Against Reporting Guidelines

Just as there are good arguments for guidelines, there are also solid concerns against them. One particularly salient argument for our profession is that the majority of these guidelines were created for medical research, not social science (Gardner et al., 2013). Table 2 lists some of the most useful guidelines for the field of social work, and it is clear that this concern has face validity. There are several reasons for this to be a challenging issue. The first reason that reporting guidelines created for a medical context may not fit easily for social science reporting is that our interventions are with people and contexts. Social work is

an applied science-person-in-environment- and the complexities of human behavior are not the same as a drug trial that can be labeled as successful or not. Controlled trials, as most of us are aware, are complicated in social work research, in part due to the difficult and expensive nature of conducting them in the field, although Thyer (2015) demonstrates in a recently published paper that such trials are not as uncommon as popular opinion suggests. Nonetheless, while medical research is often aimed at moving towards epidemiological studies of new bits of knowledge, social research is often faced with limited options for control groups and small sample sizes for particular experiences and contexts. This argument is partially answered by the development of reporting guidelines for more flexible types of studies, such as case studies, mixed method, and qualitative research. It remains true, however, that the bias of the guidelines leans towards medicine; this is something that could be addressed by the development of reporting guidelines that are responsive to the needs of our profession.

Another important criticism is that reporting guidelines support a hierarchy of evidence that was created for medical and epidemiological research, and social work is a unique professional field. This hierarchy has been criticized as “being too one-sidedly focused only on the perspective of establishing causal attribution to a treatment within the context of assessing efficacy” (van Haselen, 2015, p.142). This argument continues to be debated within social work’s scholarly circles (Cnaan & Dichter, 2007; Houston, 2005; Howard, McMillen, & Pollio, 2003). However, reporting guidelines are not intended to judge the quality of methodology or perceived value of research to the field—they are simply frameworks on which to hang the narrative of a study’s outcomes, to ensure that none of the important details are inadvertently left out. While the first guidelines (such as CONSORT) dealt with experimental trials and systematic reviews, the expansion of the library of available templates has provided an opportunity to structure studies that are focused on areas other than causal attribution and efficacy.

Some scholars assert that peer-review ensures transparent and rigorous reporting, and that this is sufficient to ensure that necessary information is included in publications. Indeed, the assertion that journal editors “ensure that research articles published in their journals are clear, complete, transparent, and as free as possible from bias” lays the burden at the feet of the gatekeepers (Stevens et al., 2014, p.2), despite emerging evidence that peer review and editorial quality of control may not be as reliable an approach as we might hope (Cobo et al., 2011; Jefferson, Rudin, Brodney-Folse, & Davidoff, 2007). Recent evidence suggests that a combination of peer-review and review of reporting through a guideline may be the most reliable way to ensure complete reporting of research (Cobo et al., 2011; Hirst & Altman, 2012; PLOS Medicine Editors, 2013). In an effort to ensure some consistency in reporting, it is logical to assume that some editors may encourage both authors and reviewers to use particular reporting guidelines, although implementation of such demands seems to vary widely (Simera et al., 2008; Stevens et al., 2014; Tao et al., 2011). This, however, leaves the burden of knowledge of all appropriate frameworks in the hands of the editors, and not only assumes that these individuals will have a robust knowledge of how to make appropriate choices, but robs the authors of the privilege of choosing the best guideline for their research, based in their experience and expertise. Although there is evidence to support more complete reporting of research when reporting guidelines are applied (Hirst & Altman,

2012; Stevens et al., 2014), few of these have been explicitly endorsed by editors of social work journals as yet. It may be in the interest of authors to be ahead of the movement and align reporting with guidelines of choice early in the research process, rather than be subject to seemingly arbitrary choices of external reviewers at the point of attempting to move information to dissemination.

While biomedical and epidemiological research are focused on generalization, causal effect, and risk-benefit ratios, social science, and social work research in particular, is more focused on experiences of people within various contexts. Reporting guidelines, some might say, impose too rigid restrictions on the inclusion of critical contextual information and restrict the voice of the participants, as well as the researcher. Often, the rich descriptions of lived experience help tell the story and frame the discussion around interventions, need, and urgency of issues being addressed. The field of social work research is often concerned with areas of social justice or other social constructs about which there may be little data in existence, or with areas of complex interactions that impact on outcomes (Gardner et al., 2013; van Haselen, 2015). Even in quantitative studies or secondary data analysis, our field expects discussion of context, impact on dimensions of community, and implications for the practice field. This important information is usually carried in the narratives that make up the introduction, literature review, and discussion sections of our publications, and critical signposts can be present even in single case studies. Even in biomedical research, such information should never be dismissed, as Van Haselen (2015) notes that “case reports are often the first ‘signals’ of potential adverse drug reactions and sometimes single cases can even contribute significantly to establishing a causal link” (p.142).

Additionally, surveys are an important tool in social research, used to assess issues ranging from political opinion to beliefs, knowledge, attitudes, opinion, or satisfaction, and well-constructed surveys often include not only quantitative responses but open-ended questions that generate narrative data. While inclusion of participant voice is critical to our field, some aspects of research remain on the list of important things to report, in order to understand bias, replicability, and rigor (Bennett et al., 2010). Items such as demographics, ethics review, recruitment, development of questions (regardless of the format of inquiry), and methods for analysing data are all easily identified as points that few would argue should be included in any research publication, regardless of methodology or design. Yet, despite such seemingly benign assumptions, these items, as well as things like reporting of informed consent procedures, study funding, description of questions, validity of instruments used, and potential for bias are frequently left out (Bennett et al., 2010).

It is important to remember that reporting guidelines “do not prescribe research conduct, but facilitate the writing and appraisal of reports” (Gardner et al., 2013, p.810). They neither impact on the rigor of the original research, nor change the tone of an author’s voice in writing. They do not include items related to age-appropriateness of interventions, urgency or political influences on study areas, or prescribe particular theoretical orientations, for example, and such multi-dimensional issues remain in the domain of the author to explicate appropriately. Reporting guidelines are purely intended “to facilitate the rigorous reporting of scientific studies and to improve the presentation and evaluation of published studies” (PLOS Medicine Editors, 2013, p.2), namely by providing a map of commonly agreed upon

items which are required for assessment of the rigor of a single study and inclusion in systematic reviews.

Nonetheless, available literature provides some important cautions: reporting guidelines should not be used by editors or reviewers as a means to reject studies “that do not meet some fixed or arbitrary threshold for quality” (Hirst & Altman, 2012, p.7). Hirst and Altman (2012) point out that imperfectly conducted studies may still contain important evidence that may move the field forward, and that policy and practice rely on such information making it into print, even when flaws are identified. For this reason, editors and reviewers must bear in mind that while reporting guidelines may help to “point out where the warts are and how big they are” (Hirst & Altman, 2012, p.7), this should not override the overall impact or importance of any particular study, nor override the feedback of appropriate peer-reviewers. Similarly, there are cautions in the literature that some authors may interpret reporting guidelines as the list of what is required and do little more in their reporting, or that guidelines may become out of date without periodic attention to revision (Lash, 2015; Rothman & Poole, 2007).

One additional concern is occasionally cited in the literature-space constraints. Some research suggests that following guidelines leads to writing longer articles (Tao et al., 2011). However, with journals now moving towards either fully online formats or online-supplemented journals, this issue is becoming less salient, and some journals refrain from word limits on methods and results sections even in print versions. Further, while this is most definitely an issue for those attempting to publish brief reports or medical journal articles, journals in social science such as *RSWP* place few constraints on length, nullifying this concern.

Finding the Right Reporting Guideline

According to the Editors of the Public Library of Science, guidelines are aimed at the identification of issues that may introduce bias, and may include not only prompts for text, but also instructions for flow diagrams, tables, and checklists for clear and transparent reporting (PLOS Medicine Editors, 2013). With hundreds of options available, it can be overwhelming to decide on a guideline to use. This decision is best made early in the process of designing the research study, so that necessary data for reporting can be adequately collected. However, this issue tends to become a factor only once the outcomes have been identified and researchers seek to move them into press.

The Toolkit for Authors page on the EQUATOR site offers guidance on selecting a guideline, scientific writing, adhering to publisher standards, communicating research to the public, and even how to conduct peer-review (<http://www.EQUATOR-network.org/toolkits/authors/>). While skewed towards biomedical science and health research, the suggestions are nonetheless helpful to the social scientist working on a manuscript submission. The site also offers several search tools, including a search by method or clinical area function or a free text search. Additionally, a navigator tool is under construction to help identify the right guideline for various types of research.

The website (<http://www.EQUATOR-network.org/library/>) contains an archive of papers and commentary related to each guideline, in addition to either full copies or links to sources or citations for the guideline documents. Available reporting guidelines cover the range of methodologies and styles, from reporting randomized controlled trials to quasi-experiments to qualitative studies, and include translations of many of the documents in at least 15 non-English languages. There are some truly specific guidelines, including guidelines for things like reporting acupuncture or music therapy interventions, herbal studies, and musculoskeletal vibration intervention studies, although in our field of social work the more common ones are for observational studies (STROBE), survey studies (CHERRIES), mixed methods studies (GRAMMS), or quasi-experimental studies (TREND). Social workers may also be interested in the CReDECI guideline, which focuses on reporting development and evaluation of complex interventions in health care. The Network continues to scan the literature for newly developed guidelines and add them to the library with whatever documentation is available for each.

By far, the most popular and well-known of these guidelines is the Consolidated Standards of Reporting Trials (CONSORT) Statement, first published in 1996, updated in 2010, and extended for specific types of trials and topics in the ensuing years (Begg et al., 1996; Ioannidis et al., 2004; Moher, Schulz, & Altman, 2001; Piaggio et al., 2006; Schulz, Altman, Moher, & for the CONSORT Group, 2010). Hundreds of journals have endorsed the use of this tool when reporting trials, although uptake remains fragmented (Gardner et al., 2013; Hirst & Altman, 2012; PLOS Medicine Editors, 2013).

Common features of these guidelines are flowcharts of the number of participants from recruitment through analysis (or number of studies in the case of a systematic review), tables for primary outcomes that include either thematic summaries or particular statistics, and checklists to verify the inclusion of items specific to recruitment and methodology. There are, of course, differences related to the type of study, however. The GRAMMS guideline for mixed methods research, for example, includes a section focused on integration of design and theoretical application of quantitative and qualitative inquiry, while the TREND guideline for non-randomized studies includes items related to blinding and participant flow.

The pattern of these guidelines, overall, can be thought of as the information that would be needed to complete a systematic review or meta-analysis. While we all would like to believe that checklists and reminders are unnecessary in our papers, the very existence of the EQUATOR library suggests otherwise. As journal editors lean more heavily into using guidelines for peer-review, authors would be well-advised to consider these same structures as they produce the work. Additionally, as future researchers are trained, exposure and experience with various reporting guidelines would assist in fluency of reporting using these types of formats for the future.

Discussion and Applications to Practice

Altman (2015) points out that many of the elements of these tools have led to an improvement in transparency, however modestly, recently explaining that “readability is certainly desirable, but far more important are reliability and relevance, and crucially

important too is reproducibility, which of course requires complete reporting” (2015, p.2). In studies that use surveys, for example, “there is substantial literature to show that the methods used in conducting survey research can significantly affect the reliability, validity, and generalizability of study results” (Bennett et al., 2010, p.2). Items such as flowcharts, tables, and graphics could be easily incorporated into any narrative story and could provide easy to locate displays of important information such as inclusion criteria, numbers of participants at various study stages, details of interventions, and primary outcomes or themes.

The potential utility of reporting guidelines is not being realized, despite the attempt by advocates to spread the word, and it is critical to emphasize that reporting guidelines should never be taken as checklists of ‘all that is necessary’ for reporting, nor as infallible or inflexible rules (Rothman & Poole, 2007). It may be necessary for some reassurance and engagement by editors to assist authors in incorporating the elements of appropriate reporting guidelines. Authors may worry that their voice is being compromised by adhering to standardized guidelines, or that they are being arbitrarily subjected to out-dated guidelines created by committees in decades past (Rothman & Poole, 2007). Editors can play a role in ensuring that this does not become a reality—that guidelines do not become a false line in the sand for rejection, as well as ensuring that narrative flexibility is retained and rich storytelling and discussion of research is both engaged and spelled out clearly for readers using tables, summary boxes, and graphics. Additionally, dissemination of guidelines must be approached in a more systematic way; rather than *ad hoc* distribution strategies, early engagement with the EQUATOR Network or assistance from journal editors could assist in creating a normative pathway for dissemination, implementation, and ongoing use of new, improved, or adapted guidelines (PLOS Medicine Editors, 2013; Simera et al., 2008). While following reporting guidelines does not necessarily ensure that researchers will do a better job in designing methodologies, their usage ensures that consumers of scientific literature will have the information that they need to adequately assess quality, bias, and utility of research.

It remains true that the majority of reporting guidelines have been developed for the fields of healthcare and medical research. While research reporting in the social sciences does share common ground with medical research, the styles and topic areas as well as participant contexts vary considerably, and social justice, empowerment, inclusivity and culture are often important pieces of the work that is produced in our field. For this reason, the field of social work should turn a critical eye to our presentations of research and assess the need for reporting guidelines that consider the person-in-environment orientation that we use. Additionally, the inclusion of tables, graphs, and flowcharts that are consistent with reporting guidelines should not mean that writing styles in our field should become an exercise in technical description. Social work research is grounded in the lived experiences of our clients, and research in our field should support the work that clinicians are doing on the front lines. The voices and unique context and identities of our research participants need not be lost in technical jargon; the discussion of implications for social work practice remains a critical piece of writing, regardless of any other structure that is included in a paper. Gardner et al (2013) suggest developing guidelines specific to social research and involving multiple stakeholders, and Rothman and Poole (2007) suggest periodically revisiting published guidelines for the purpose of updating them to reflect the needs and

current realities of the field. Suggestions such as these may help to increase utility and uptake, and reassure social scientists that rigor and transparency do not have to kill the narrative of findings.

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Table 1

Major Goals of the EQUATOR Network

1	Develop and maintain a comprehensive collection of online resources providing up-to-date information, tools and other materials related to health research reporting.
2	Assist in the development, dissemination and implementation of robust reporting guidelines.
3	Actively promote the use of reporting guidelines and good research reporting practices through an education and training program.
4	Support journals in implementing reporting guidelines and conduct regular assessments of how journals use these guidelines.
5	Conduct regular audits of reporting quality across the health research literature.
6	Set up a global network of local EQUATOR centers to facilitate the improvement of health research reporting on a worldwide scale.
7	Develop a general strategy for translating the principles of responsible research reporting into practice.

Available at: <http://www.EQUATOR-network.org/about-us/>

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Table 2

Selected Guidelines to Consider

	Type of study used for	Developed for (field)	Notes about the guideline
CONSORT	RCTs & Experimental studies	Medicine	Has extensions & updates; Available through EQUATOR library
STROBE	Observational studies	Medicine/Healthcare	Available through EQUATOR library
TREND	Non-randomized studies	Behavioral/Public health	Available through EQUATOR library
Reeves & Gaus (2004)	Nonrandomized cohort studies	Medicine	Found in Research on Complementary & Natural Classical Medicine, 11(S1), 46–52.
PRISMA	Systematic Reviews	Medicine/Healthcare	Available through EQUATOR library
CARE	Case studies	Medicine	Available through EQUATOR library
COREQ	Qualitative studies	Healthcare	Available through EQUATOR library
RATS	Qualitative studies	Medicine	Available through EQUATOR library
ENTREQ	Systematic reviews of qualitative studies	Medicine	Available through EQUATOR library
GRAMMS (2008)	Mixed methods studies	Healthcare	Found in Journal of Health Services Research & Policy, 13, 92–98.
Bronstein & Kovachs (2013)	Mixed methods studies	Social Work	Found in Research on Social Work Practice, 23, 354–360.
Leech & Onwuegbuzie (2010)	Mixed methods studies	Counseling	Found in Journal of Counseling & Development, 88, 61–69.
CHERRIES	Internet based surveys	Medicine	Available through EQUATOR library
TIDieR	Replication of experimental intervention studies	Medicine	Available through EQUATOR library
SQUIRE	Quality Improvement studies	Healthcare	Available through EQUATOR library
CHEERS	Economic evaluations	Healthcare	Available through EQUATOR library
Financial conflicts of interest checklist	Clinical research studies	Healthcare	Available through EQUATOR library
CRDeCI 2	Complex healthcare intervention development & evaluation	Healthcare	Revised guidelines available through EQUATOR library
CONSORT-EHEALTH	Evaluation of web-based or mobile health	Healthcare	Available through EQUATOR library
WIDER	Evaluation of implementation of behavior change interventions	Behavioral medicine	Available through EQUATOR library
Harrington & Noar (2012)	Studies of tailored educational interventions	Health education	Found in Health Education Research, 27, 331–42.