

Demystifying Peer Review: A Tribal Evaluation Institute Brief

Peer review is a process research professionals have agreed upon to ensure that research studies are of high quality before they can be published in journals. The articles are reviewed by professionals, or peers, who have expertise in the field being studied. Known collectively as peer-reviewed literature, the articles published in professional journals document and share evidence.

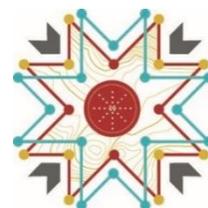
The brief first introduces readers to various ways peer-reviewed literature can be useful for audiences other than researchers or evaluators, and then attempts to demystify the peer-review process by describing some of its core aspects. Finally, it encourages readers to consider contributing to the literature and outlines some initial steps to writing an article for a peer-reviewed journal.

This brief was developed by Tribal Evaluation Institute (TEI), which provides guidance, leadership and support to grantees of the Tribal Maternal, Infant, and Early Childhood Home Visiting (Tribal MIECHV) Program. TEI members from James Bell Associates, Inc. (JBA) and the Centers for American Indian and Alaska Native Health, University of Colorado collaborated in the development of this brief.

Demystifying Peer Review was developed for Tribal MIECHV program managers, evaluators, staff, and partners, but others may also find it useful. Whether you are new to peer review, already have some knowledge of it, or need a tool to explain it to others, this brief can help.



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How can you use peer-reviewed literature?

Peer review is a Western scientific model for evaluating and disseminating—or sharing—evidence that is trustworthy. It is one way of reviewing and disseminating information, but it may not always seem like the best way. It may not appear relevant to your work or the kind of evidence your community values. The process can seem mysterious, and the literature can be dry. However, peer-reviewed literature can be very useful, especially when you are trying to select an [evidence-based practice](#) or when you need scientific support in grant applications.

Peer-reviewed literature can help you select *evidence-based practices* for your community. This literature can help you make the best choice for your community by narrowing the options to programs most likely to be effective with the children and families you serve. Scientific evidence of effectiveness that has passed peer review can tell you how well a program worked for a given community, for whom it may work best, and what challenges, if any, may be associated with it. There are a lot of programs, and it can be hard to pick the “right” one. Accessing peer reviewed literature can save you valuable time and resources in this process.

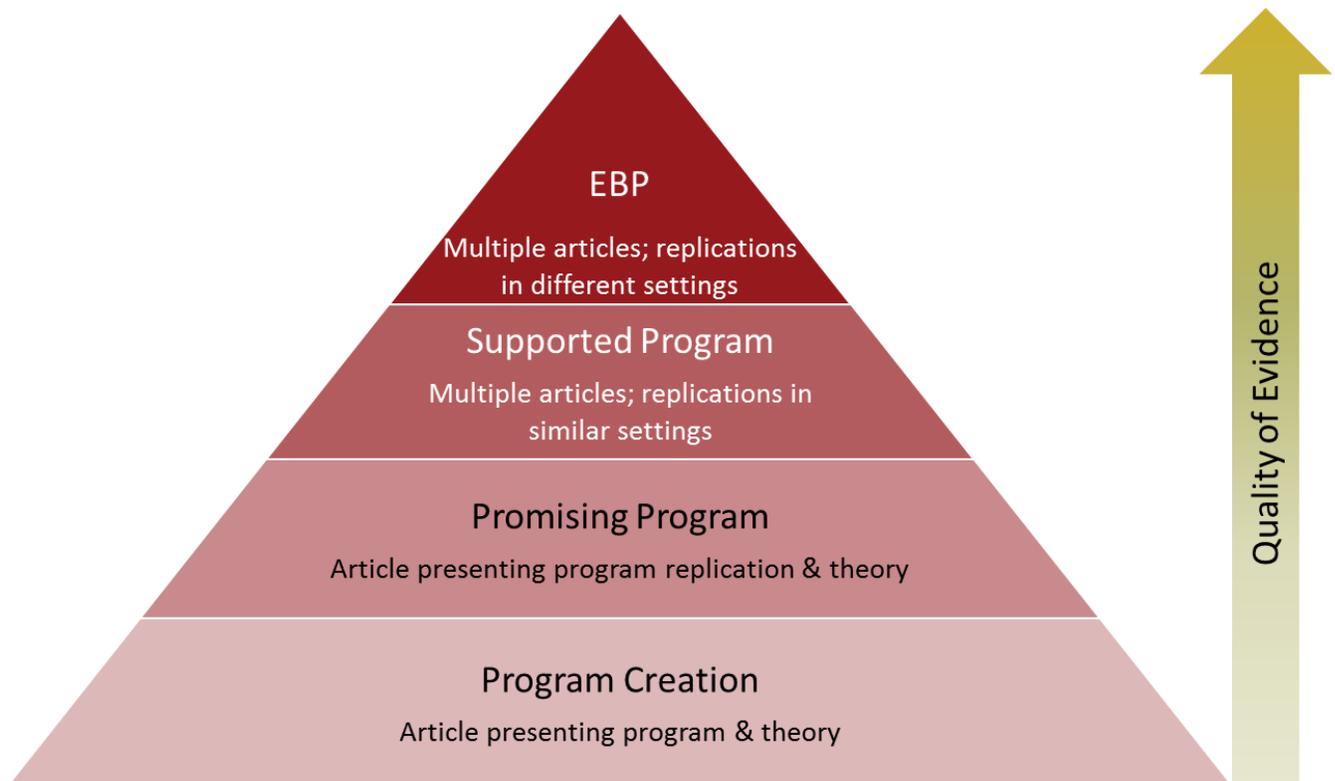
Peer-reviewed literature can support efforts to obtain additional resources to support or sustain home visiting. Using this literature to support your proposed activities tells funders that you are building your plan on an existing knowledge base

that is founded on credible and reliable evidence. Funders are most willing to support programs that are backed by this type of evidence, and, in fact, they often require the use of evidence-based practices for this reason. In contrast to other forms of evidence review where there is a systematic assessment of existing literature (i.e. HomVEE), peer review is conducted before articles are published with the goal of ensuring robust and meaningful findings that make new contributions and are supported by high quality evidence.

How does peer review ensure the quality of evidence?

Peer review is like quality assurance for [research](#). For example, when your program uses trained supervisors to review the work of your home visitors, you are helping to ensure program quality. Similarly, peer review uses experts who are trained in scientific methods to evaluate the work of authors and ensure sound methods and valid interpretation of findings. Peer review gives authors the opportunity to have skilled reviewers examine their work, provide feedback, and help them improve. Evidence-based programs are considered evidence-based because they have gone through multiple levels of peer-review. Peer-review ensures integrity in data collection and interpretation and lends [credibility](#) to the evidence. The figure below depicts how a program is established as evidence-based through a continual process of high-quality research, peer review and dissemination.

Establishing Evidence-Based Practice (EBP) Through Peer Review



What kinds of peer-reviewed journals are there?

There are hundreds of journals, ranging from fairly general (e.g., *Child Development*, *Pediatrics*) to highly specialized (e.g., *American Indian and Alaska Native Mental Health Research*, *Infant Mental Health Journal*). Some important characteristics of journals are described next.

Impact factors. Impact factors are a type of rating that gives a general sense of how many people read a particular journal and cite papers from it in other scientific articles. Circulation, measured by the number of journal subscribers, used to be the primary indicator of the quality and reach of a journal, but many articles are now posted online, making a journal's circulation a weaker indicator of readership than it used to be, so impact factors are now more commonly used. Impact factors are typically equated with credibility, and authors often seek to publish in journals with high impact factors. However, in some cases, impact factors may reflect the size of the audience more than the quality of the science. Journals that publish articles of broader interest naturally have larger audiences than journals that focus on specialized research areas such as Native populations or young children. Specialized journals may have exactly the kind of articles you want to read.

Access. Peer review is an imperfect dissemination strategy, in part because individuals and community-based organizations often have limited access to this literature. Many journals are only accessible through expensive subscriptions, typically paid for by universities and other research institutions for their faculty and staff. Other journals are open access. They publish online, with free access to all. They typically cover costs by charging fees to authors instead of charging subscription fees to readers. This can limit access to publishing in these journals. Federal agencies are working to improve access. Since 2009, the National Institutes of Health (NIH) has required free access to articles published from NIH-funded research within 12 months of publication through PubMed (<http://www.ncbi.nlm.nih.gov/pubmed>).

Rigor. The more prestigious the journal, the more [*rigorous*](#) (credible, transparent and trustworthy) the peer review process is likely to be. Journals of leading scholarly organizations (e.g., *American Academy of Pediatrics*) tend to have high standards and highly qualified reviewers. They receive hundreds of submissions each year, so the competition is high. Journals with lower impact factors and open access generally have somewhat less *rigorous* reviews and fewer submissions, thus increasing the odds of publication.

What kinds of articles are there?

Peer-reviewed journals publish many kinds of articles. We will focus here on [*research articles*](#), which is a term we use for a written accounts of

interventional studies or observational studies. There are many approaches to research. The recently released Common Framework for Research and Evaluation ([*Weblink*](#)) describes many of the approaches and delineates various types of studies and study outcomes. The document also discusses standards for quality across different types of studies.

Interventional studies. When researchers conduct an interventional study they focus on what changes (or doesn't change) in response to an intervention. In one type, experimental studies, an experimental group receives an intervention, and a comparison or control group does not. [*Alternative study designs*](#) can also support evidence of intervention effectiveness and are often necessary in tribal communities due to small sample sizes or other concerns (e.g., unwillingness to withhold a potentially helpful program from a comparison group). Tribal MIECHV grantees are at the forefront of developing alternative study designs.

Observational studies. When researchers conduct observational studies they focus on something that is occurring without additional intervention. Observational studies gather data on (observe) what is occurring (i.e. health issues, behaviors) without intervening in any way. They include [*epidemiological studies*](#), [*etiological studies*](#), and [*longitudinal studies*](#).

For an understanding of other types of journal articles (such as reviews, commentaries, or brief reports), see [*Writing Articles for Peer-Review Publications: A Quick Reference Guide for Public Health Services and Systems Research*](#), listed in the Resources section of this brief.

How are the articles structured?

Research articles usually have six sections: abstract, introduction, method, results, discussion, and references. They often have figures and tables and sometimes have appendices. Each journal provides instructions for authors that describe the structure and style to be followed. Styles include [American Psychological Association](#), or APA (2009), and Vancouver. You may notice that in this brief, we are using APA style. The examples shown here are from a recent article in the *American Journal of Psychiatry* on the effectiveness of the Family Spirit home visiting program ([Barlow et al., 2015](#)) was prepared using Vancouver style. If you are writing an article, you should review the instructions, articles of the same type as yours that were recently published in that journal, and the guidebook for the required style.

Abstract. The first section in any peer-reviewed publication is the abstract. It provides a brief but important overview. The abstract is the first thing people read and, if they do not find it relevant, it may be the only thing they read. It is usually the only part of the article that can be directly accessed in online literature searches (e.g., [Google Scholar](#)) without a subscription. As in the example below, the abstract is often structured, with headings that mirror those in the body of the paper.

Sample Abstract

Paraprofessional-Delivered Home-Visiting Intervention for American Indian Teen Mothers and Children: 3-Year Outcomes From a Randomized Controlled Trial

Allison Barlow, M.P.H., Ph.D., Britta Mullany, Ph.D., M.H.S., Nicole Neault, M.P.H., Novalene Goklish, B.S., Trudy Billy, B.S., Ranelda Hastings, B.S., Sherilynn Lorenzo, Crystal Kee, B.S., Kristin Lake, M.P.H., Cleve Redmond, Ph.D., Alice Carter, Ph.D., John T. Walkup, M.D.

Objective: The Affordable Care Act provides funding for home-visiting programs to reduce health care disparities, despite limited evidence that existing programs can overcome implementation and evaluation challenges with at-risk populations. The authors report 36-month outcomes of the paraprofessional-delivered Family Spirit home-visiting intervention for American Indian teen mothers and children.

Method: Expectant American Indian teens (N=322, mean age=18.1 years) from four southwestern reservation communities were randomly assigned to the Family Spirit intervention plus optimized standard care or optimized standard care alone. Maternal and child outcomes were evaluated at 28 and 36 weeks gestation and 2, 6, 12, 18, 24, 30, and 36 months postpartum.

Results: At baseline the mothers had high rates of substance use (>84%), depressive symptoms (>32%), dropping out of school (>57%), and residential instability (51%). Study retention was \geq 83%. From pregnancy to 36 months

postpartum, mothers in the intervention group had significantly greater parenting knowledge (effect size=0.42) and parental locus of control (effect size=0.17), fewer depressive symptoms (effect size=0.16) and externalizing problems (effect size=0.14), and lower past month use of marijuana (odds ratio=0.65) and illegal drugs (odds ratio=0.67). Children in the intervention group had fewer externalizing (effect size=0.23), internalizing (effect size=0.23), and dysregulation (effect size=0.27) problems.

Conclusions: The paraprofessional home-visiting intervention promoted effective parenting, reduced maternal risks, and improved child developmental outcomes in the U.S. population subgroup with the fewest resources and highest behavioral health disparities. The methods and results can inform federal efforts to disseminate and sustain evidence-based home-visiting interventions in at-risk populations.

Am J Psychiatry 2015; 172:154–162; doi:10.1176/appi.ajp.2014.14030332

Introduction. The next section is the introduction or background section, which may not have a heading. This section reviews relevant research and the rationale for the current study. It includes the research questions and hypotheses.

Method. The method section describes how the study was conducted, including the sample, procedures, and data collected. As in the example above, subheadings often include study design, participants, interventions, and outcomes.

Discussion. Each article concludes with a discussion or conclusion section. It interprets findings presented in the results section and relates them to the literature presented in the introduction. This section should explain what the results mean and why they matter. It should also identify study limitations (all studies have limitations) and discuss how future work may build upon the knowledge gained in the study or address the limitations.

References. The references section provides full information about the article's citations.

Sample Method Section

METHOD Study Design A multisite, randomized (11), parallel, controlled trial was conducted to assess the efficacy of the Family Spirit Intervention for parenting and for maternal and child behavioral outcomes from 32 weeks gestation to 36 months postpartum. Participants were randomized to either the intervention or control group.	Outcomes Intervention impact was assessed in three domains: 1) parental competence, 2) maternal emotional and behavioral outcomes, and 3) children's emotional and behavioral outcomes at nine time points: approximately 28 to 32 weeks gestation (baseline), 36 weeks gestation, and 2, 6, 12, 18, 24, 30, and 36 months postpartum. Study assessments were selected for their wide applicability, cross-cultural validity, implementation and dissemination. Assessments are described by Cronbach's alpha scores (parental competence, mean alpha=0.84; maternal emotional and behavioral outcomes, mean alpha=0.80; internalizing behaviors, mean alpha=0.80; externalizing behaviors, mean alpha=0.89; competence, mean alpha=0.89; 12, 18, 24, 30, 36 months). These outcomes are presented both as means and as proportions of participants whose scores were clinically "of concern," i.e., ≤ 10 th percentile (31).
Participants Eligible participants were expectant American Indian teens (ages 12-19 years at conception) at no more than 32 weeks gestation from four southwestern reservation communities. Participants were recruited through community-based participatory research (12).	Sample Size The primary outcome for determining sample size and power was the HOME (27). With 322 participants and an assumption of 25% attrition, $\alpha=0.05$, within-family correlation of $r=0.5$, and assessment completion rate of four out of the six time points when the HOME was to be administered, the study had 90% power to detect a meaningful public health effect size of 0.33 (32).
Interventions The Family Spirit Intervention was developed over a decade through community-based participatory research (12). The intervention content included 43 structured lessons and followed a culturally congruent format (14). Positive parenting was assessed by the HOME (27) and the HOME was measured with a 27-item scale across three domains: parent self-control (mean alpha=0.84; maternal emotional and behavioral outcomes, mean alpha=0.80; internalizing behaviors, mean alpha=0.80; externalizing behaviors, mean alpha=0.89; competence, mean alpha=0.89; 12, 18, 24, 30, 36 months). These outcomes are presented both as means and as proportions of participants whose scores were clinically "of concern," i.e., ≤ 10 th percentile (31).	Randomization and Blinding The data manager created the randomization sequence by using Stata 9.0 (StataCorp, College Station, Tex., 2005). Participants were stratified by site, age (12-15 and 16-19 years), and sex.

Results. The results section follows next, with a clear description of the data obtained and the analyses performed. Figures and tables are often included here.

Appendices. Some journals allow appendices for information that is important but too detailed for the main article. They might include items used to measure outcomes or technical information about analyses. Appendices are sometimes available only online.

What does the peer review process look like?

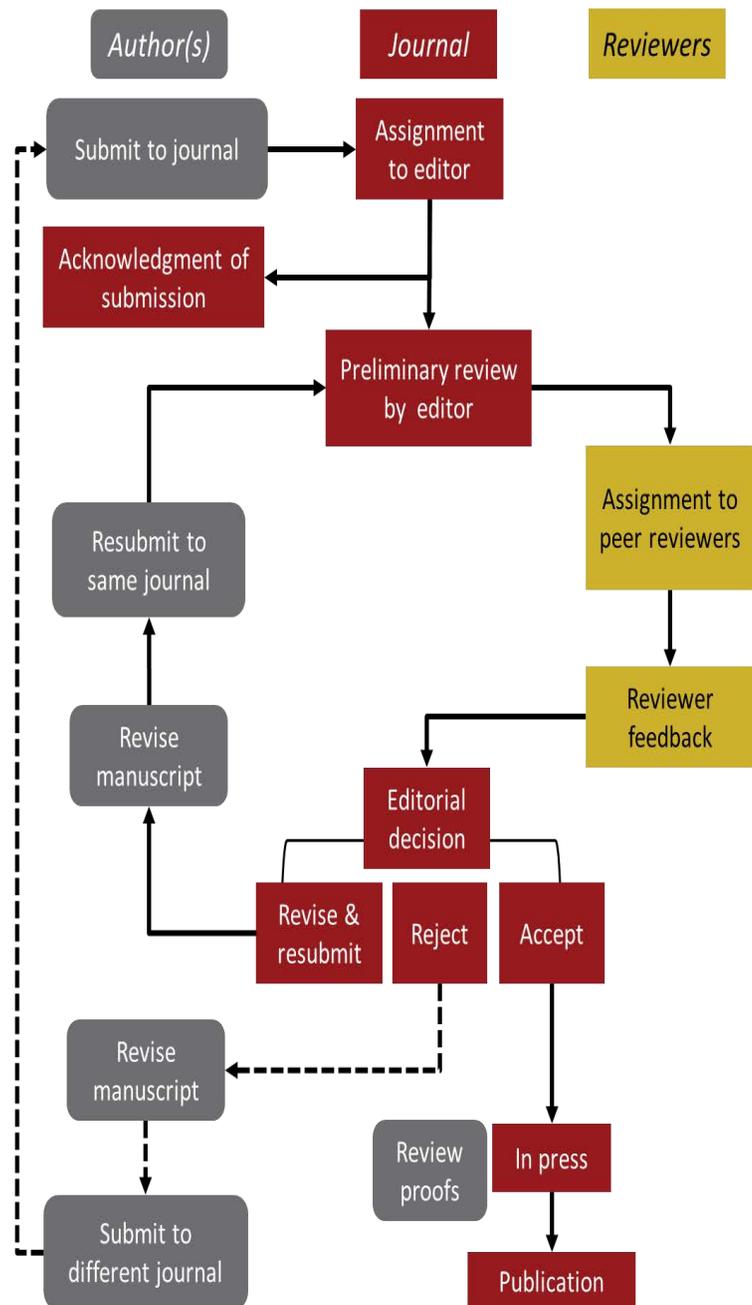
The peer review process takes several months or more and involves three primary groups of people.

Authors. Usually several authors collaborate to write an article. One takes the lead—typically the person heading the study or doing most of the analysis and writing. The lead author does most of the writing, submits the article for review, corresponds with the journal, and manages revisions and resubmissions.

Journal staff. An editorial assistant at the journal logs in manuscripts and answers general questions. The journal assigns each manuscript to an editor who is an established researcher. The editor identifies two or three appropriate peer reviewers and shepherds the manuscript through the review process.

Peer reviewers. Reviewers do not work for the journal and are not paid to conduct reviews. They are chosen for their relevant expertise with the article's subject, methodology, or analysis.

Peer reviewers assess the manuscript for both quality science and quality writing. They look to see that the introduction, method, results, and discussion are clear, complete, sound, and appropriate, as described in the previous section. Each reviewer independently provides his or her recommendation to the editor about whether to accept, invite revision and resubmission, or reject the manuscript for publication, but the final decision is up to the editor. This multiple perspective review process ensures that articles that are published can be trusted.



Reviews are often “double-blind”; this means the identity of the authors is not revealed to the reviewers until after the review process is complete, and the identity of the reviewers is not revealed to the authors at any point. This is done to ensure objectivity, so that reviewers hold all submissions to the same standards, regardless of their knowledge of the authors, and they feel free to provide honest reviews.

The typical peer review process is shown at right; the details may vary from journal to journal. Below are some tips on how to start your own journey through the peer review process.

Why should you consider writing articles for peer-reviewed journals?

Now that you are familiar with the basic components of the peer review process, we hope you are thinking about how you might be able to contribute to this literature by writing an article for a peer-reviewed journal. By writing articles, you can share what you have learned and help build the knowledge base. Few studies have been conducted on home visiting and early childhood practices in tribal communities, and even fewer have been published. The Tribal Home Visiting program to date represents 25 different studies of how communities can implement home visiting to better serve American Indian and Alaska Native (AIAN) families. It takes time to write articles and gain the necessary permissions to publish, but by sharing the lessons you have learned, you

can help others across the country and the world.

How do you get started?

Draft an outline. Decide what story you have to tell. Jot down bullet points for each section. Think about the bottom line. What was learned? How can your work inform the field of home visiting or other services for tribal children and families? How can others benefit from your work?

Choose a journal. Find several journals that publish the kind of article you want to write and attract the audience you want to reach. You cannot submit simultaneously to more than one journal and you will need to tailor your article to the particular journal requirements. So, carefully review each one before you start intensive writing. If your study is qualitative, look for journals that publish qualitative work. If it reports on an intervention with young children and families, look for journals that focus on that population. Consider the three features discussed earlier: impact factors, access, and *rigor*. Aim high, but be realistic to avoid wasting time.

When considering which journal would be best for your article, remember your intended audience and try to choose a journal that is likely to reach them. The best paper in the world will not have an impact if it is not read by the right people.

Some journals allow you to send them an abstract to see if your article would be of interest to them. Ask the journals on your list whether they conduct pre-submission

reviews; if they do, send them an abstract and see what they say.

Once you have chosen a journal, read the author instructions and other guidance on the journal's Web site.

Develop a schedule. Program staff and evaluators have a lot on their plates, and writing an article goes beyond their usual responsibilities. Set deadlines to prioritize the writing work, keep things moving, and provide a source of motivation. Promise to get coauthors an outline by a certain date, ask for their input by a certain date, and commit to dates when you will deliver each draft for their review. You could pick a date to submit the article to the journal, and then work backwards to develop a schedule.

Do you need approval from the tribe or organization before publishing?

In most cases, the answer is yes, but review processes differ across tribal entities. Some tribes require review of manuscripts before they are submitted to the journal, while others only require a copy upon publication. Find out what the tribal organization you work with requires. Even if review is not required, it is best practice to notify the tribal authority of your plans, request permission, and share copies of the published article. Review can take a few days to several months, so factor it into your timeline.

How do you prepare and submit the manuscript?

Just start writing. This can be the hardest part. Look back at things you've written, such as grantee progress reports, for text you can cut and paste now and edit later. You don't have to write the article in order. You can write the methods (what you did) and the results (what you found) first, and then write the introduction, discussion, and abstract later. Think about the journal's audience. For example, if the journal specializes in AIAN families, you may provide different context about AIAN communities than you would for a more general journal.

Get feedback from your team. Don't wait until you have a finished document. Share your outline and each draft with your coauthors, ask for contributions and feedback, and revise accordingly.

Polish the manuscript. Check that the manuscript meets the journal's formatting and style requirements, is clearly written, and is free of errors. Recruit a colleague to read it with fresh eyes. Use resources like the ones provided at the end of this brief. Sloppy manuscripts are unlikely to be accepted.

Determine authorship. The team that develops the article should determine authorship together. Authors are typically listed in order of their contribution. The first author gets the most credit; he or she presumably took the lead on the study and did most of the writing. Often two or more

individuals contributed equally but differently, such as academic and community partners or evaluators and program directors. If more than one article is being developed, you can alternate the first author. If it is too difficult to sort out, you can list the authors alphabetically or randomly.

Submit the manuscript. When you are ready to submit, check and follow the journal's procedures. Submission is usually done online. You can suggest that the editor include peer reviewers with expertise in particular areas, such as research in AIAN communities.

What are the outcomes of peer review?

The editor will collect the peer reviews of your article, add his or her own perspective, and make an editorial decision.

Accept means the journal will publish the article, often with minor revisions. If the decision is accept, celebrate! Respond to the editor's questions and requests as directed (often within 48 hours). The time an article remains "in press" before it is published varies. It can take a year or longer if the journal has a backlog. Some journals publish articles online in advance of print, sometimes very quickly.

Revise and resubmit means the article has the potential to be published. That is a good outcome. Experts have taken the time to review your manuscript, they like it, and they are giving you ideas to make it better. Don't take negative comments personally, as they

are intended to be constructive and to help you improve the paper. Review them, revise the manuscript, and resubmit it. Include a cover letter explaining how you addressed each concern (or, if you did not address something, provide a rationale). Many journals also require a version of the manuscript with the changes highlighted.

The editor will review the revised manuscript and send it back to the peer reviewers, if available, or to new reviewers. In some cases, the editor may make a publication decision without returning to the reviewers. There may be multiple rounds of review and revision, with each round taking several weeks, or even months.

Reject means the editor will not consider a revision of the manuscript. The article may not be a good fit for the journal, or the reviewers and editor may feel the study is flawed or not significant enough to warrant publication. The important thing is that you took a chance, and you have feedback that can help you improve the article and shop it around to another journal. Be positive, be persistent, and move forward.

Conclusion

This brief provides an overview of peer review, which is one way of documenting and sharing scientific evidence. For more information, explore specific journals and the resources listed on the next page. Then consider sharing your Tribal Home Visiting story so others can benefit from what you have learned.

Glossary

Alternative study designs: Variations on experimental study designs. Examples include single-case designs, retrospective control group designs, and wait-listed comparison designs.

Credibility: The quality of being trustworthy, believable, convincing.

Epidemiological studies: Observational studies that document rates of problems within populations (e.g., prevalence of child abuse or autism) and the need for related services (e.g., home visiting).

Etiological studies: Observational studies that seek to understand the risk factors for and causes of problems (e.g., parenting stress as a risk factor for poor social-emotional outcomes among children) to inform interventions.

Evidence-based practices: Practices that have been demonstrated to be effective through rigorous research.

Longitudinal studies: Observational studies that collect data over time on a group of individuals (e.g., developmental change in a group of children).

Research: Systematic process of investigation; verifiable by observation or experience.

Research Articles: Articles written to disseminate research findings.

Rigor: Various processes in study design, methodology and peer review to ensure that findings are credible (cause and effect are well founded), transparent (populations, settings and other components are clearly detailed) and trustworthy (measures used accurately captured information).

Resources

[Google Scholar](#). Free search engine for scholarly literature.

[How to Get Published: What Distinguishes a Good Manuscript From a Bad One?](#) Elsevier.

[Peer Review: The Nuts and Bolts](#). Sense About Science

[Purdue Online Writing Lab](#). Purdue University.

[Understanding the Publishing Process: How to Publish in Scholarly Journals](#). Elsevier.

[Writing Articles for Peer-Review Publications: A Quick Reference Guide for Public Health Services and Systems Research](#). AcademyHealth.

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