1. Arthroscopy. 2025 Nov;41(11):4381-4388. doi: 10.1016/j.arthro.2025.07.038. Epub 2025 Aug 9.

Lost but Not Forgotten: How to Manage Follow-Up Loss in Clinical Research

The interconnectedness of the modern world should make following patients and accessing their records much easier than in the past. For those of us old enough to remember, this once involved boxes full of papers, charts, microfiche records, images printed on radiographic films, and connecting with our patients via mailed letters. With modern electronic medical records and numerous means of electronic communication, this should be much easier. However, the demands on our patients' time are higher than ever before, mitigating some of these technological benefits. While all studies would benefit from 100% follow-up, real-world concerns lead to the inevitable loss of patients in research studies. Researchers should strive to lower and mitigate these losses and, when possible, explore potential bias introduced with attrition. Losses to follow-up risk lowering the validity of the research via the introduction of selection and attrition bias. Proper accounting for and reporting of patients throughout the inclusion, exclusion, and analysis of a study allows the reader to assess the amount of risk introduced by patient loss and its potential effect on the study outcomes and conclusion. Finally, when loss to follow-up occurs, it should be explicitly reported, accounted for by using appropriate statistical analyses (such as Kaplan-Meier), and its impact discussed in the interpretation of the results.

2. Med Humanit. 2025 Nov 24;51(4):529-532. doi: 10.1136/medhum-2025-013268.

Health beyond statistics: a capabilitarian revision of Daniels' theory of just health

This paper examines how the biostatistical theory (BST), as endorsed by Norman Daniels' account of just health, can be integrated with the capabilities approach to address the 'lowering functioning objection'. This objection argues that the BST could mistakenly define a population as healthier if the prevalence of a certain pathology increases and becomes the new statistical norm. To tackle this issue and offer a more coherent and normatively robust account of just health, the paper introduces a two-tiered model. The first tier retains the biostatistical model to provide a non-comprehensive, evidence-based foundation for health, focusing on the distribution of biological functionings within a population. The second tier introduces a capabilitarian survey that normatively assesses whether the new statistical norm supports or hinders the achievement of valuable capabilities. This integration enables a more holistic, flexible, pluralistic and context-sensitive understanding of health, framing it as a quasi-normative meta-capability-namely, a capability grounded in biological functionings but not reducible to them, which is essential for achieving other valuable capabilities. After explaining the rationale for this integration and outlining a Rawlsian-inspired approach to selecting valuable capabilities, I conclude by suggesting the implications of this model for Daniels' theory.

3. Stat Med. 2025 Nov;44(25-27):e70303. doi: 10.1002/sim.70303.

On "Confirmatory" Methodological Research in Statistics and Related Fields

Empirical substantive research, such as in the life or social sciences, is commonly categorized into the two modes exploratory and confirmatory, both of which are essential to scientific progress. The former is also referred to as hypothesis-generating or data-contingent research, while the latter is also called hypothesis-testing research. In the context of empirical methodological research in statistics, however, the exploratory-confirmatory distinction has received very little attention so far. Our paper aims to fill this gap. First, we revisit the concept of empirical methodological research through the lens of the exploratory-confirmatory distinction. Second, we examine current practice with respect to this distinction through a literature survey including 115 articles from the field of biostatistics. Third, we provide practical recommendations toward a more appropriate design, interpretation, and reporting of empirical methodological research in light of this distinction. In particular, we argue that both modes of research are crucial to methodological progress, but that most published studies-even if sometimes disguised as confirmatory-are essentially exploratory in nature. We emphasize that it may be adequate to consider empirical methodological research as a continuum between "pure" exploration and "strict" confirmation, recommend transparently reporting the mode of conducted research within the spectrum between exploratory and confirmatory, and stress the importance of study protocols written before conducting the study, especially in confirmatory methodological research.

4. J Korean Med Sci. 2025 Nov 17;40(44):e321. doi: 10.3346/jkms.2025.40.e321.

The P Value: What It Is and What It Is Not

The P value remains one of the most frequently reported statistical measures in biomedical literature, yet it is also one of the most widely misunderstood statistics. Introduced by Fisher as a measure of evidence against the null hypothesis, it was subsequently incorporated into the Neyman-Pearson decision framework, which emphasized long-run error rates and decision thresholds. Over the past decades, reliance on the conventional cut-off of P = 0.05 has fostered misconceptions, including the belief that the P value represents the probability that the null hypothesis is true or that statistical significance implies clinical importance. In this review, I examine the historical evolution of the P value, clarify the conceptual distinctions between evidential and decision-theoretic perspectives, and illustrate their implications through a case study. Common misinterpretations and the limitations of threshold-based inference are discussed, together with the consequences for reproducibility, statistical power, and interpretation of results. Recent recommendations from statistical associations and methodologists to move beyond dichotomous significance testing are highlighted. Complementary approaches, such as estimation of effect sizes with confidence intervals (CIs), likelihood ratios, and Bayesian inference, are briefly considered. I conclude that although the P value may provide useful information when properly interpreted, it should not be used as a sole criterion for inference. Transparent reporting of effect sizes, CIs, and contextual information offers a more reliable foundation for scientific interpretation and decision making.

5. Obstet Gynecol Sci. 2025 Nov;68(6):467-472. doi: 10.5468/ogs.25232. Epub 2025 Aug 18.

Statistical analysis using ChatGPT in medical research

This study aimed to explore the utility of ChatGPT in streamlining statistical analyses within medical research, evaluating its capabilities in data management, exploratory data analysis (EDA), statistical test selection, and result interpretation. It also addresses the critical need for appropriate disclosures and ethical considerations when integrating artificial intelligence (AI) tools into a scientific workflow. We review the current landscape of AI adoption in medical research, focusing on the role of ChatGPT in statistical analysis. Practical examples from lecture materials demonstrate its application in generating virtual datasets, performing data cleaning, conducting EDA, and assisting in the selection of appropriate statistical tests. Furthermore, guidelines for transparently disclosing AI tool usage in scientific manuscripts in accordance with the International Committee of Medical Journal Editors recommendations are discussed. ChatGPT demonstrates considerable potential for accelerating various stages of statistical analysis, from initial data preparation to the interpretation of results. Its ability to rapidly generate virtual data for practice, assist in comprehensive data cleaning, and provide immediate insights through EDA can substantially enhance research efficiency. Although capable of suggesting statistical methods and interpreting outputs, human intervention remains crucial for verifying assumptions and ensuring calculation accuracy. ChatGPT can serve as a powerful assistant in medical statistical analyses, enabling researchers to conduct analyses more efficiently. However, its use requires careful data preprocessing, human verification of results, and transparent reporting to maintain scientific rigor and reproducibility. Adherence to ethical guidelines and journal policies regarding AI tool disclosure is paramount.

6. Trials. 2025 Nov 10;26(1):482. doi: 10.1186/s13063-025-08868-w.

Enhancing training in trials methodology research: insights from doctoral graduates

Training in trials methodology research is important for advancing clinical trials, ensuring the use of robust methods and addressing inefficiencies that can cause research waste. The Trials Methodology Research Partnership (TMRP) provides a specialised doctoral training programme to cultivate expertise in this distinct field. This article offers the perspectives of recent TMRP graduates, providing insights into skill development and professional growth delivered through structured training. These reflections highlight the value of comprehensive doctoral training in adequately equipping the next generation of trial methodologists to address evolving challenges and drive innovation in clinical trials. Recommendations for enhancing the training experience are provided with the aim to support the recruitment, development and retention of future methodologists.

7. Am J Nurs. 2025 Dec 1;125(12):e9-e12. doi: 10.1097/AJN.0000000000000199. Epub 2025 Nov 20.

Understanding Multiplicity Issues in Statistical Analysis

It is not uncommon for researchers to try to use the same dataset to conduct more than one inferential statistical analysis. For example, sometimes researchers want to conduct hypothesis testing with outcomes that are different from the originally planned main effect, or with a similar outcome but across different subgroups, using the same significance level for all tests. A significant finding could just be a product of an increased rate of spurious statistical significance or false-positive rate. This article introduces the topic of multiplicity, including definitions, examples, and implications for research studies, and offers potential solutions. It is intended primarily for nursing researchers and other health care professionals, students, and people conducting research based on statistical hypothesis analysis. It can also be used as an introductory guide for nurses who would like a basic understanding of multiplicity issues in studies based on inferential statistical analysis.

8. Nat Med. 2025 Nov;31(11):3624-3633. doi: 10.1038/s41591-025-04015-9. Epub 2025 Nov 10.

Maximizing researcher-policymaker engagement in global public health

A common misconception that prevails within some research communities postulates that research results 'speak for themselves' and are thus sufficient to influence policy. Yet, high-fidelity uptake of research is rarely a passive process; more often, researchers need to actively engage with policymakers. This process of policy engagement strives towards producing robust science that contributes to the betterment of our societies-but it is a process for which many researchers are not adequately trained. If publicly funded research fails to influence policy, many would regard it as falling short of fulfilling its potential value to society. Herein, we provide a framework for research-policymaker engagement, framed around the questions of why, on what, with whom, when, where and how clinical and public-health researchers can and should undertake engagement with policymakers. The views presented in this Perspective are a synthesis of the diverse, collective experience of the authors across global health contexts, supported by real-world illustrative case studies. We provide tangible recommendations for researchers, funders and policymakers to facilitate bridging the gap between evidence and policy.

9. Creat Nurs. 2025 Nov;31(4):438-439. doi: 10.1177/10784535251390542. Epub 2025 Oct 27.

Choosing an Analytical Approach in Qualitative Descriptive Studies

Qualitative descriptive studies are one of the most used methodologies across health and nursing research. This fourth editorial in the series titled "Focus on Qualitative Data Analysis" aims to provide researchers with guidance on how to choose appropriate methods of analysis when using qualitative descriptive studies. We provide an analytical choice tree that presents our perspective on the methods of analysis in qualitative descriptive. The previous article in this series addressed case study methodology, narrative inquiry, and phenomenology.

10. Stat Methods Med Res. 2025 Nov;34(11):2133-2144. doi: 10.1177/09622802251367442. Epub 2025 Aug 29.

A Bayesian approach towards the identification of latent subgroups

In clinical trials, it is often of interest to know whether treatment works differently for some groups than others, known as heterogeneity of treatment effect. Such subgroup analysis is complicated to conduct because trials are typically not powered to find subgroups. Furthermore, it is difficult to identify characteristics of patients pertaining to such subgroups. In this article, we propose a semiparametric mixture model to identify subgroups with time-to-event outcomes. Specifically, we assume a proportional hazards model with subgroup-specific piecewise constant baseline hazards, where the subgroup-specific treatment effect is assumed to be the same within each subgroup. The probability of belonging to a certain subgroup is a function of patient prognostic factors. Adopting a Bayesian approach, classification uncertainty is taken into account. We demonstrate the utility of our approach via simulation and an application to data from a real clinical trial in HIV research.

11. J Clin Epidemiol. 2025 Nov:187:111942. doi: 10.1016/j.jclinepi.2025.111942. Epub 2025 Aug 22.

When and why to use overlap weighting: clarifying its role, assumptions, and estimand in real-world studies

Objectives: To examine the strengths and limitations of overlap weighting in observational studies and to clarify when it is appropriate to use this method based on the target estimand.

Study design and setting: This is a narrative commentary that reviews recent methodological developments and real-world examples to highlight how overlap weighting operates, when it provides advantages over methods like inverse probability of treatment weighting, and the importance of aligning analytic methods with the causal question and estimand.

Results: Overlap weighting produces bounded, stable weights and achieves exact mean covariate balance in the subset of patients with overlapping treatment probabilities near 0.5-those considered to be in clinical equipoise. However, it targets the average treatment effect in the overlap population (ATO), a statistically defined subgroup that is difficult to characterize clinically. Use of this method without prespecifying interest in the ATO may lead to misinterpretation of results. While overlap weighting improves statistical performance, it limits generalizability and interpretability. Study design and inclusion/exclusion criteria remain critical for addressing violations of positivity.

Conclusion: Overlap weighting is most appropriate when the research question explicitly targets the overlap population. It should not be adopted solely to resolve estimation issues with average treatment effect or average treatment effect in the treated methods. Researchers must define their target estimand before choosing a method and clearly report the characteristics of both the unweighted and overlap-weighted populations to ensure valid causal inference.

Plain language summary: Overlap weighting is a statistical method used in health research to compare treatments when people are not randomly assigned to different options. It focuses on patients who could realistically receive either treatment and helps improve the fairness and precision of comparisons. However, the results apply only to this specific group and not everyone in the study. Researchers should choose this method only when it fits the question they are asking.

12. BMC Med Res Methodol. 2025 Nov 20;25(1):261. doi: 10.1186/s12874-025-02719-7.

Alternative tests and measures for between-study inconsistency in meta-analysis

Meta-analysis is a widely used method for synthesizing results from multiple studies across diverse fields. A central challenge in meta-analysis is assessing between-study inconsistency, which can arise from differences in study populations, methodological heterogeneity, or the presence of outliers. Conventional tools such as the [Formula: see text] and [Formula: see text] statistics could be limited in power, especially when the number of studies is small or when the between-study distribution deviates from normality. To address these limitations, we propose a family of alternative [Formula: see text]-like statistics and a hybrid test that adaptively combines their strengths. We also introduce new measures to quantify inconsistency based on these statistics. Simulation studies demonstrate that the hybrid test performs robustly across a wide range of inconsistency patterns, including heavy-tailed, skewed, and contaminated distributions. We further illustrate the practical utility of our methods using three real-world meta-analyses. These approaches offer more flexible and powerful tools for detecting and quantifying inconsistency in meta-analytic practice.

شرکت پژوهشگران مطالعات بالینی سلامت شفا

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