Is a Case Series Really a Case Series?

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INTRODUCTION:

A case series is a common study design seen in orthopaedic research, yet many articles claim to be case series that do not fit the true biostatistical definition. The mislabeling of studies as case series impacts the ability to accurately assign a level of evidence and alters the perceived strength of the clinical application of the findings. The aim of this study was to evaluate articles labeled as case series to determine if they met the epidemiologic definition of a case series.

METHODS:

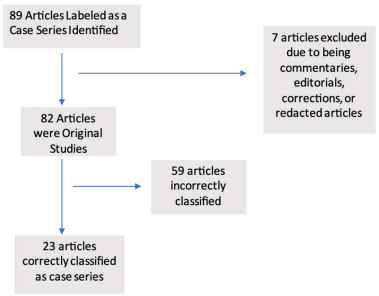
Utilizing PubMed, the titles of ten orthopaedic journals, based on the Google Scholar h-index, were searched for the term “case series.” Two reviewers read the full articles independently to determine if the article met the definition of a case series: a study that selects participants based on a common outcome. Level of evidence assigned by the journal was also included. Following initial screening, the reviewers met to discuss any discrepancies and to properly classify the article study designs and levels of evidence based on the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines. Case reports were defined as studies with a sample size of 5 or less.

RESULTS:

Of the 82 articles reviewed, only 23 (28%) were accurately classified as case series based on the epidemiological definition. Using the STROBE guidelines 37 (62.7%) articles were reclassified as retrospective cohort studies, 15 (25.4%) reclassified as prospective cohort studies, 6 (10.2%) reclassified as case reports (with sample size N ≤ 5), and 1 (1.7%) reclassified as a case-control study. Following reclassification of level of evidence, of the articles incorrectly defined as a case series, 15 (25.4%) were found to be level II evidence, 38 (64.4%) were level III, and 6 (10.2%) were level V evidence.

DISCUSSION AND CONCLUSION:

The orthopaedic research community should develop a universally accepted definition of a case series, case report, and cohort study for researchers to use when classifying their studies. Journals must also carefully inspect articles claiming to be case series and the level of evidence assigned to prevent continued mislabeling. These changes would prevent the overall downgrading of articles to lower levels of evidence due to study design mislabeling which dampens the impact the research has on the growing body of literature and adoption into clinical practice.



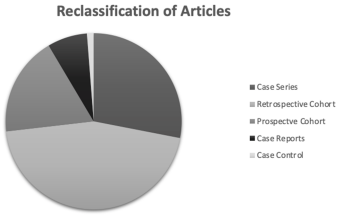


Table 1. Journal ranking by h-5 index

Ranking	Journal Title	h5-Index	Number of Articles Identified
1	The American Journal of Sports Medicine	88	10
2	The Journal of Arthroplasty	79	3
3	The Journal of Bone & Joint Surgery	78	3
4	Knee Surgery, Sports Traumatology, Arthroscopy	71	3
5	The Bone & Jount Journal	62	3
6	Clinical Orthopaedics and Related Research	61	0
7	Spine	58	11
8	Journal of Shoulder and Elbow Surgery	57	17
9	Arthroscopy: The Journal of Arthroscopic & Related Surgery	56	12
10	European Spine Journal	56	20