

Citation Rate Predictors in the Plastic Surgery Literature

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Background: Citations rates are used to calculate a journal's impact factor and by academic promotion committees to assess the impact of a researcher's efforts (1). In the medical literature, several studies have examined the factors associated with higher citation rates (2,3). The results of these studies have varied showing an association with citation rates and numerous study characteristics including study methodology, industry-funding, sample size, and newsworthiness (4). In the realm of plastic surgery, no study has previously explored what factors are associated with higher citation rates.

Methods: We reviewed all entries in *Annals of Plastic Surgery* and *Journal of Plastic, Reconstructive, and Aesthetic Surgery* from January 1, 2007 to December 31, 2007; and *Plastic and Reconstructive Surgery* from January 1, 2007 to December 31, 2008. All scientific articles were analyzed and several article characteristics were extracted including: conflict of interest, sample size, level of evidence, study design, and number of prior publications by the primary author. The number of citations at 5 years was collected as the outcome variable. A multivariable analysis was performed to determine which variables were associated with higher citations rates.

Results: A total of 2456 papers were identified of which only 908 fulfilled the inclusion criteria. The majority of the studies were publications in the fields of Reconstructive (26.3%) or Pediatric/Craniofacial (17.6%) surgery. The median number of citations five years from publication was 8. In the multivariable analysis, factors associated with higher citations rates were: subspecialty-field ($p = 0.0003$), disclosed conflict of interest ($p = 0.04$), number of authors ($p = 0.04$), and journal ($p = 0.02$).

Conclusion: We have found that study methodology is not associated with higher citation rates. Instead, non-scientific factors are strong predictors of high citation rates in plastic surgery. Our study provides evidence that citation rates differ between plastic surgery subspecialties and these differences should be taken into account whenever citation rates are utilized for analytical and comparison purposes. At the editorial level, our results also highlight the importance of using objective metrics to assess the rigorosity of research methodology. The fact that sample size or level of evidence were not associated with higher citation rates suggests that utilizing tools like journal quality checklists may be needed to improve the current quality of plastic surgery research.

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