INTRODUCTION

The Hirsh Index (h-index) is a widely accepted academic metric that determines the overall impact (both quantity and quality) of an individual in published scientific literature. The h-index is defined as “the number of papers with citation number ≥ h or ≤ h”.

The h-index is now considered an important marker for the process of tenure and promotion at academic medical programs. It is easily computable and can be used as a yardstick with which to compare, in an unbiased way, the importance, significance and broad impact of an individual’s cumulative research contributions.

In general, a higher h-index generally signifies more impactful publications. Though, a potential shortcoming is that both citations and self-citations affect h-index. The purpose of this study is to define the publication patterns and the impact of self-citation amongst Chairpersons and Full Professors in General Surgery Residency Programs.

METHODS

Through the Association of Program Directors in Surgery website, 65 Surgical Residency Programs were randomly selected from the 259 listed using a random number generator. A list of Chairpersons and Full Professors was obtained from these programs through individual program websites or through contact with program coordinators. This website was accessed in July 2018.

Using the Scopus Database, we calculated the number of publications, citations, self-citations, and h-index for each surgeon. The total number of citations and h-index were recorded before and after checking the box labeled “Exclude Self-Citations of Selected Author” and any changes were noted. The discipline of number in which the h-index changed due to self-citation and the magnitude of those changes.

RESULTS

A total of 685 Professors of Surgery were identified, with 625 Full Professors and 60 Chairpersons. The mean number ± SD of publications, citations, and h-index for the cohort were 81.4 ± 93.5, 2740 ± 4794, and 20.4 ± 17.3, respectively. The pooled self-citation rate for the entire cohort was 3.55%. The mean self-citation rate for the entire cohort was 2.46%. Excluding self-citations reduces the mean number of citations to 2643 ± 4653 and h-index to 200 ± 16.8. The h-index remained unchanged for 72% (496685) of surgeons. Only 3% (21968) had a change in h-index of greater than two integers. Within the entire cohort and the subgroups of Chairpersons and Full Professors, the average h-index change with self-citation was an increase of 0.44, 0.42 and 0.44, respectively.

There was a moderate positive correlation between number of publications and number of self-citations (R²=0.5897). There was a low positive correlation between number of publications and change in h-index (R²=0.3244). However, there was no correlation between program size and self-citation (R²=0.0177) or change in h-index (R²=0.0039).

Our data showed that Chairpersons had significantly higher number of overall publications (115 vs 78, p<0.03) and h-index (27.6 vs 19.8, p<0.01) than Full Professors. However, self-citation rate between Chairpersons and Full Professors was not statistically different (2.56% vs 2.45%, p=0.41).

CONCLUSION

Self-Citation is infrequent (3.55%) and has a minimal impact (average h-index change of 0.4) on the academic profile of Professors or Chairpersons in General Surgery Residency Programs.

Chairpersons had significantly higher number of overall publications and h-index, when compared to Full Professors.

Although there is no standard control for an acceptable amount of self-citation or subsequent change in h-index, our results appear to fall within those published in the last 10 years (Table 3).