Master of Science

A Master of Science (Latin: Magister Scientiae; abbreviated MS, M.S., MSc, M.Sc., SM, S.M., ScM or Sc.M.) is a master's degree in the field of science awarded by universities in many countries or a person holding such a degree.

In contrast to the Master of Arts degree, the Master of Science degree is typically granted for studies in sciences, engineering, and medicine and is usually for programs that are more focused on scientific and mathematical subjects; however, different universities have different conventions and may also offer the degree for fields typically considered within the humanities and social sciences. While it ultimately depends upon the specific program, earning a Master of Science degree typically includes writing a thesis.

Previous authors have investigated many factors that predict an academic neurosurgical career over private practice, including attainment of a Doctor of Philosophy (PhD) and number of publications. Research has yet to demonstrate whether a master's degree predicts an academic neurosurgical career. This study quantifies the association between obtaining a Master of Science (MS), Master of Public Health (MPH), or Master of Business Administration (MBA) degree and pursuing a career in academic neurosurgery.

Public data on neurosurgeons who had graduated from Accreditation Council for Graduate Medical Education (ACGME)-accredited residency programs in the period from 1949 to 2019 were collected from residency and professional websites. Residency graduates with a PhD were excluded to isolate the effect of only having a master's degree. A position was considered “academic” if it was affiliated with a hospital that had a neurosurgery residency program; other positions were considered nonacademic. Bivariate analyses were performed with Fisher's exact test. Multivariate analysis was performed using a logistic regression model.

Within the database of neurosurgery residency alumni, there were 47 (4.1%) who held an MS degree, 31 (2.7%) who held an MPH, and 10 (0.9%) who held an MBA. In bivariate analyses, neurosurgeons with MS degrees were significantly more likely to pursue academic careers (OR 2.65, p = 0.0014, 95% CI 1.40-5.20), whereas neurosurgeons with an MPH (OR 1.41, p = 0.36, 95% CI 0.64-3.08) or an MBA (OR 1.00, p = 1.00, 95% CI 0.21-4.26) were not. In the multivariate analysis, an MS degree was independently associated with an academic career (OR 2.48, p = 0.0079, 95% CI 1.28-4.93). Moreover, postresidency h indices of 1 (OR 1.44, p = 0.048, 95% CI 1.00-2.07), 2-3 (OR 2.76, p = 2.01 × 10-8, 95% CI 1.94-3.94), and ≥ 4 (OR 4.88, p < 2.00 × 10-16, 95% CI 3.43-6.99) were all significantly associated with increased odds of pursuing an academic career. Notably, having between 1 and 11 months of protected research time was significantly associated with decreased odds of pursuing academic neurosurgery (OR 0.46, p = 0.049, 95% CI 0.21-0.98).

Neurosurgery residency graduates with MS degrees are more likely to pursue academic neurosurgical careers relative to their non-MS counterparts. Such findings may be used to help predict residency graduates' future potential in academic neurosurgery [1].

1)

Khalafallah AM, Jimenez AE, Tamargo RJ, Witham T, Huang J, Brem H, Mukherjee D. Impact of master's degree attainment upon academic career placement in neurosurgery. J Neurosurg. 2019 Dec 6:1-9. doi: 10.3171/2019.9.JNS192346. [Epub ahead of print] PubMed PMID: 31812143.