



# The Status of Pain Research in Academia and how We Are Doing in the United States

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The goal of our work was to evaluate the status of pain research in academia. We wanted to find out if majority of research in pain management was performed in academic institutes or in private practice setting.

The data used in this study was acquired through the online database Scopus. Scopus allowed us to search its database while using affiliation as a parameter. We used the advanced search tool to perform a search of all published documents that had “pain” in either their title, abstract, or as a keyword. This search yielded 1,008,913 results. Then this was narrowed down to just papers published that fall into the subject area of medicine using the refining tool in Scopus to yield 861,750 results. These document results were then narrowed down to the past 50 years which yielded 847,031 results. Another search was then performed to find all papers within the database that had any affiliation with a college, school, institute, or university producing 43,618,292 results. To find results that may be affiliated with universities or institutes that are not spelt in English, we used “universit\*” and “instit\*” in Scopus to produce all results with that beginning for spelling. We then combined the two searches to find document results that contained the following parameters: pain in the title, abstract, or as a keyword, was in the medicine subject area, had been published in the last 50 years, and was academically affiliated. This search provided us with a final result of 543,437 documents.

This suggested that approximately 64% of papers published in the past 50 years have come from academic sources.

The ability to search using the parameter of affiliation is why we used Scopus to retrieve our data. However, this feature is not perfect; only recently, we have a majority of authors of a paper who had their affiliation associated with it. Previously, it has only been the first author containing an affiliation or there has been no affiliation at all with the paper. Additionally, there has only been one affiliation associated with each author in the past. If an author was associated with both an academic and a non-academic source, only one would be associated with the paper. Within the past 10 years, there has been an effort for papers previously published to have the affiliation of the authors be added to the papers in online databases.

Due to these limitations, we ran a search using identical parameters other than using only the past 25 years. This yielded 730,005 results, with 502,706 (68.9%) results that had an academic affiliation.

To find the amount of papers with an academic affiliation coming from only English literature, we used the same search parameters but only searched for affiliations with the English spelling of “Institute” and “University”. There were 39,649,842 total results for papers with an English academic affiliation. 847,031 papers in the past 50 years have pain medicine in the title, abstract, or as a keyword. 495,098 of those results have come from English-speaking academic sources, approximately 58%. Using the refining tool in Scopus, we chose the parameter of being affiliated with the USA to find 179,994 results. These results contained all the following parameters: pain in the title, abstract, or as a keyword; being in the subject area of medicine; having an affiliation with an English-speaking academic source; being affiliated with the USA; and that have been published in the past

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50 years. This accounts for approximately 21% of all pain medicine papers published in the past 50 years. There were 244,925 results for documents that had pain in the title, abstract, or, as a keyword; being in the subject area of medicine; was affiliated with the USA; and was published in the last 50 years. This suggests that of the 244,925 pain documents published in the last 50 years that are affiliated with the USA and are in the medicine subject area, approximately 179,994 (73%) of them are academically affiliated.

Our report showed that while still majority of pain medicine research from academic institutes, only 21% of pain medicine research was done in the USA.

## Compliance with Ethical Standards

**Conflict of Interest** Alaa Abd-Elsayed and Kenneth Fiala declare that they have no conflict of interest.

**Human and Animal Rights and Informed Consent** This article does not contain any studies with human or animal subjects performed by any of the authors. Informed consent was taken from patients prior to enrollment.

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