

Representation of specialties in Coronavirus Disease 2019 (COVID-19) research: analysis of published literature in the first 3 months

J. ROBLES¹, G. AGGARWAL², S. AGGARWAL¹

¹Department of Medicine, UnityPoint Clinic, Des Moines, IA, USA

²Department of Medicine, Jersey City Medical Center, Jersey City, NJ, USA

Abstract. – OBJECTIVE: Coronavirus disease 2019 (COVID-19) has infected more than 1.5 million patients worldwide and is associated with high morbidity and mortality. The volume of research published in a specialty, which may shed light on the perceived impact that a topic plays within that discipline, is unknown for the present pandemic.

MATERIALS AND METHODS: We analyzed all articles published in the first 3 months on COVID-19 and categorized them by journal type and article content.

RESULTS: There was a ~100-fold difference in articles published on COVID when categorized by journal type and ~65-fold difference when grouped by article content.

CONCLUSIONS: There is a wide variation in research published within various specialties regarding COVID-19. Researchers across specialties need to urgently realize the impact of COVID-19 and publish articles that can help improve understanding of this ongoing pandemic.

Key Words:

PubMed, COVID-19, Coronavirus.

Introduction

The first report of coronavirus was published on January 14, 2020 which described potential for international spread of the virus¹. Since then, the scientific community has been working hard to potentially define risk factors for severe disease and treatment options. The interplay between basic sciences and all divisions of clinical medicine will play an important role in the global response to COVID-19. The volume of research published in a certain medical journal or specialty may highlight the perceived impact that COVID-19 plays within that discipline. We hypothesized that different clinical specialties have not responded

equally in publishing scientific research during this pandemic.

Materials and Methods

We searched PubMed for the term “COVID”. All articles published until April 14, which would be 3 months from the first publication on COVID, were included. The articles were then categorized into a specialty by first grouping them based on the content of the article deemed by the title and abstract. A second analysis was performed based on the journal scope that the article was published in and subdivided into the same specialty categories.

Results

A total of 3633 journal articles were published on COVID from January 14, 2020 to April 14, 2020 and were classified into one of 36 categories. We analyzed researches based on article content, the top five categories included infectious diseases (16%), other (10%), pulmonary and critical care (9%), public health (8%), and pathology (6%) (Table I). However, when the categorization was done based on journal specialty, the top five categories were general internal medicine (22%), infectious diseases (16%), other (8%), public health (6%), and pulmonary and critical care (4%).

There was a ~100-fold (811 internal medicine vs 8 neurosurgery) difference between the top and bottom specialty when published articles were categorized by journal scope (Figure 1). This difference remained ~65-fold (581 infectious disease versus 9 neurosurgery) when articles were categorized based on content. Even after removing the articles in top five categories, there was still

a ~18-fold difference between the top and bottom placed specialty by journal type (142 radiology vs. 8 neurosurgery) and ~23-fold difference by article content (206 pharmacology and 9 neurosurgery).

Discussion

Our study reveals that there is a wide variation in research publications on COVID. While the heavy volume of research within specialties of infectious disease, public health and pulmonary and critical care is expected, other specialties have lagged. Although, previous reports have demonstrated cardiology and neurology to be among top

3 specialties by number of publications², these specialties did not even feature in top 10 specialties for COVID-19 research.

However, our study has several limitations. The subjective method of categorization is the biggest limitation of our study. However, we read journal aims and scope statements wherever the categorization was not clear. We cannot account for studies that are still under peer review or were not accepted for publication, though this could be true across the specialties and may not affect our results. Also, we expect the above results to change with time as more studies are published. We only utilized “COVID” as our search term, and there may be other articles that do not men-

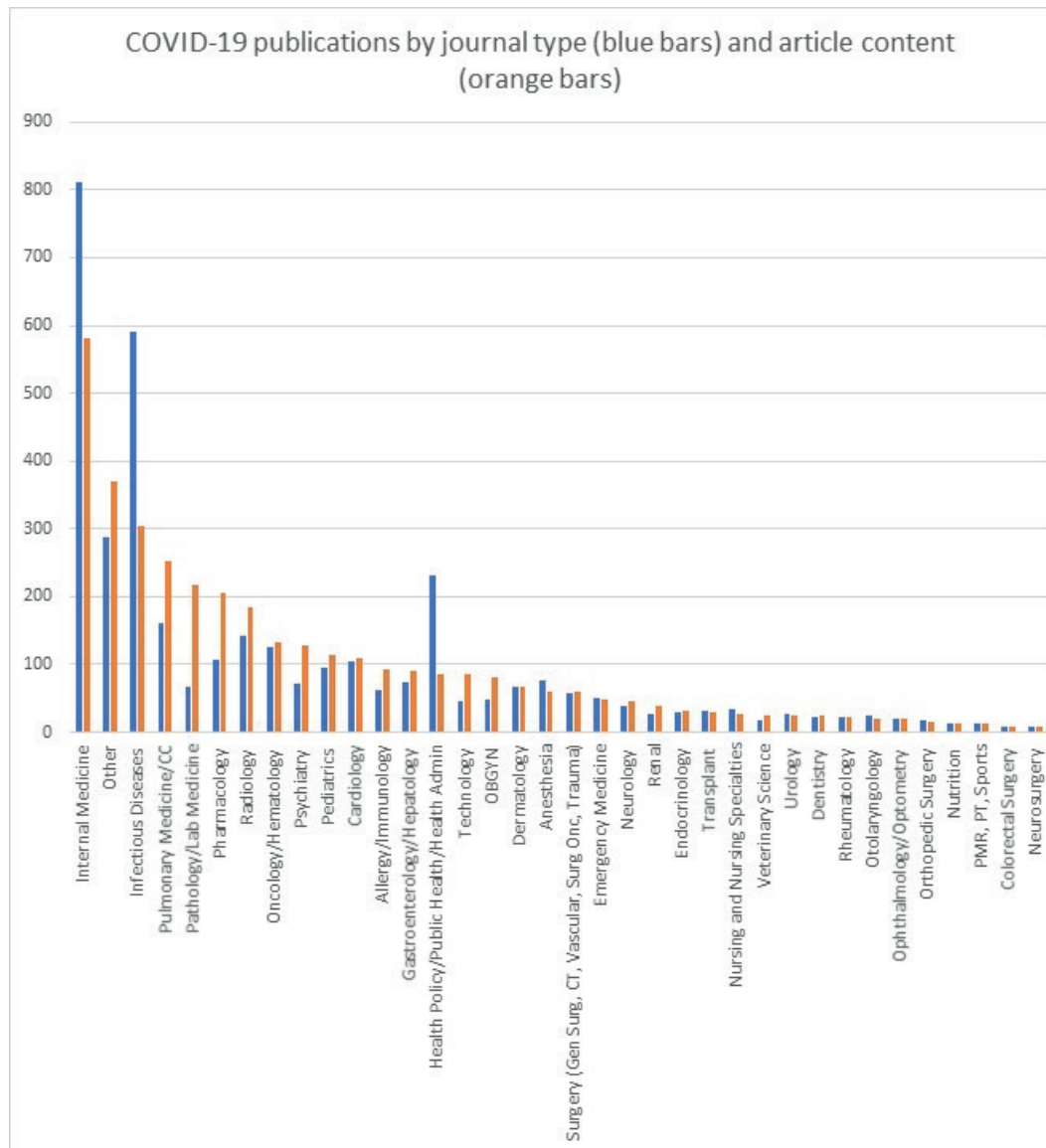


Figure 1. Research publications on coronavirus disease 2019 (COVID-19) by journal specialty and article content.

Table I. Number of publications on coronavirus disease 2019 (COVID-19) by journal type and article content of all articles published until April 14, 2020.

Specialty	By journal type	By article content
Internal Medicine	811	581
Other	288	369
Infectious Diseases	591	304
Pulmonary medicine/Critical care	162	253
Pathology/Lab medicine	66	217
Pharmacology	108	206
Radiology	142	184
Oncology/Hematology	125	133
Psychiatry	72	128
Pediatrics	95	115
Cardiology	105	110
Allergy/Immunology	63	94
Gastroenterology/hepatology	75	90
Health policy/Public health/Health admin	231	87
Technology	45	87
Obstetrics and gynecology	48	80
Dermatology	67	66
Anesthesia	77	59
Surgery (General, cardiothoracic, vascular, oncology, trauma)	58	59
Emergency Medicine	51	49
Neurology	39	45
Renal	28	38
Endocrinology	29	32
Transplant	32	29
Nursing and Nursing specialties	35	26
Veterinary Science	18	25
Urology	26	24
Dentistry	22	24
Rheumatology	22	23
Otolaryngology	25	21
Ophthalmology/optometry	19	20
Orthopedic Surgery	17	15
Nutrition	12	13
Physical medicine, Sports	12	12
Colorectal surgery	9	9
Neurosurgery	8	9

tion this term in their title or abstract. Our results confirmed the variation even after we ran additional analyses to remove the effect of research volume in disciplines directly related to an infectious process of pandemic nature.

Conclusions

Therefore, our study provides early insights into publication trends by specialty which hopefully will serve as a ‘wake-up call’ for clinicians and researchers working in specialties with lower volume of published research on COVID-19.

Conflict of Interests

The Authors declare that they have no conflict of interests.

References

- 1) BOGOCH, II, WATTS A, THOMAS-BACHLI A, HUBER C, KRAEMER MUG, KHAN K. Pneumonia of unknown aetiology in Wuhan, China: potential for international spread via commercial air travel. *J Travel Med* 2020; 27. pii: taaa008.
- 2) EHANNO JF, LADNER J, ROLLIN L, DAHAMNA B, DARMONI SJ. How are the different specialties represented in the major journals in general medicine? *BMC Med Inform Decis Mak* 2011; 11: 3.