

Medical education focus in published articles related to COVID-19

G. AGGARWAL¹, S. AGGARWAL², J. ROBLES²,
J.R. DEPASQUALE¹, A. AUSEON³

¹Department of Medicine, Jersey City Medical Center, Jersey City, NJ, USA

²Department of Medicine, UnityPoint Clinic, Des Moines, IA, USA

³Department of Medicine, University of Illinois-Chicago, Chicago, IL, USA

Abstract. – OBJECTIVE: The ongoing pandemic of Coronavirus Disease 2019 (COVID-19) has affected >2 million patients with approximately 900,000 cases in the United States alone. Medical education has possibly suffered during this time, due to disease mitigation strategies and stress on both students and teachers. We aimed to quantify the publications describing the impact of COVID-19 on medical education in the early stage of the pandemic.

MATERIALS AND METHODS: Abstract and titles related to COVID-19 listed in PubMed were reviewed for an educational focus. Articles with an educational focus were further evaluated for characteristics of content.

RESULTS: Out of a total of 3641 articles related to COVID-19, only 26 (0.7%) articles had an educational theme. Thirteen articles were pertaining to residency and fellowship education and twelve articles were focused on medical student education. Only one article referred to nursing education.

CONCLUSIONS: Publications pertaining to medical education during the ongoing COVID-19 pandemic are few. There is an urgent need for scholarship to understand the best processes and develop innovative methods that can help improve the educational experience of students and trainees during this extraordinary time.

Key Words:

Medical education, Bibliography, Coronavirus, COVID-19.

Introduction

Since the first report of Coronavirus Disease-2019 (COVID-19) originated in Wuhan, China, the illness has reached pandemic status, affecting more than 2 million patients worldwide¹. Efforts to mitigate spread, such as social distancing and the cancellation of in-person classes and confe-

rences, have led to unprecedented challenges for the education of students and trainees in the medical field. Program leaders have worked to respond through recognition of the new environment and rapid adjustments to instruction. This radical shift in the educational environment is likely to lead to new publications describing novel approaches. Such publications entering the public domain will allow for evaluation and discussion as the field reckons with abrupt change. We aimed to quantify and describe publications related to COVID-19 focused on medical education during early phase of the pandemic.

Materials and Methods

We searched PubMed for the term “COVID” and “pandemic”. All articles published from January 14, 2020 (first published report on COVID) to April 14, 2020 were included. Titles and abstracts were screened to determine educational focus. Full text versions of articles were retrieved and were categorized by learner group: nursing; medical student; resident or fellow education. Finally, topics and journal characteristics publishing these articles were analyzed.

Results

Out of a total of 3641 journal articles published on COVID-19 from January 14, 2020 to April 14, 2020, only 26 articles pertained to education (1 referred to nursing education, 12 focused on undergraduate medical education, and 13 described residency and fellowship education). Out of the 13 articles dealing with resident and fellow education, 2 were general in scope for resident edu-

cation, 7 were from surgical specialties, 2 were from dermatology, and 2 were from subspecialties (cardiology and rheumatology). Out of the top five journals ranked by Impact Factor, there was only 1 educational themed article focused on COVID-19 published in the Journal of American Medical Association. Twelve articles of the total of 15 were from the United States (USA).

Discussion

Our study showed that published research focused on education of health professionals has been poorly represented during the ongoing COVID-19 pandemic, accounting for less than 1% articles. Fortunately, several of these manuscripts contain highly practical information for educators and trainee leaders²⁻⁵ as they make changes in their educational infrastructure during the early phase of the pandemic. However, the uncertain future that COVID-19 presents to those responsible for shaping the education of health care trainees will require continual iteration of programs and an ability to be nimble in evaluation, implementation, and dissemination. This is exacerbated by the fact that the timeline from submission to appearance on PubMed is approximately 100 days for biomedical research and 263 days for publications in health professions research⁶. To address this lag, publishers in the biosciences arena have responded to the pandemic increased submissions to open-access journals, posting manuscripts on preprint servers, and removing journal paywalls where COVID-19 content is posted⁷. In the vacuum of education-themed publications, other media have shown a much faster response time, thus have great potential to act as a surrogate for traditional manuscript publication. Twitter and medical podcasting have been adopted in medical education and are rapidly gaining acceptance by teachers and learners⁸⁻¹¹. For context, the Twitter hashtags #COVID-19 and #coronavirus have already been used in over 560 million Tweets since January 2020¹². Morning reports and noon conferences can be conducted through virtual platforms employing live-video sessions¹³. However, the benefits of such approaches and attitudes of faculty and students towards them are unknown at this point and need to be evaluated in future research.

Our study has several limitations. We cannot account for studies that were still under peer review or rejected for publication. Also, we expect the above results to change with time as more literature

is published and our report describes trends only in the first 3 months of publications related to COVID-19. However, we recently demonstrated this approach to be effective in providing early insights on published literature during the ongoing pandemic¹⁴. We only utilized “COVID-19” and “pandemic” as our search terms in PubMed, and there may be other articles that do not mention this term in their title or abstract. Understandably, there are far more biomedical journals that focus on disease process than there are education focused journals. The proportion of published articles that focus on education in general is also not well understood, but due to the extreme and unprecedented situation affecting students and trainees, we sincerely hope there will be more research describing best methods for medical education during this pandemic and lessons learnt now can be applied in future.

Conclusions

Our study reveals that only 0.7% articles published during the ongoing pandemic of COVID-19 focused on medical education. There is an urgent need to find adaptive ways to apply and test innovative methods to enhance learning of medical students, residents and fellows.

Conflict of Interest

The Authors declare that they have no conflict of interests.

References

- 1) WORLD HEALTH ORGANIZATION. Coronavirus disease 2019 (COVID-19) pandemic. Accessed 04/16/2020. (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>)
- 2) ROSE S. Medical student education in the time of COVID-19. *JAMA* 2020; 323: 2131-2132.
- 3) RAKOWSKY S, FLASHNER BM, DOOLIN J, REESE Z, SHPILSKY J, YANG S, SMITH CC, GRAHAM K. Five Questions for residency leadership in the time of COVID-19: reflections of chief medical residents from an Internal Medicine Program. *Acad Med.* 2020 Apr 13:10.1097/ACM.0000000000003419.
- 4) DEFILIPPIS E, STEFANESCU SCHMIDT A, REZA N. Adapting the educational environment for cardiovascular fellows-in-training during the COVID-19 pandemic. *J Am Coll Cardiol* 2020; 75: 2630-2634.

- 5) ANDERSON ML, TURBOW S, WILLGERODT MA, RUHNKE GW. Education in a crisis: the opportunity of our lives. *J Hosp Med* 2020; 15: 287-289.
- 6) MAGGIO LA, BYNUM WE, SCHREIBER-GREGORY DN, DURNING SJ, ARTINO AR. When will I get my paper back? A replication study of publication timelines for health professions education research. *Perspect Med Educ* 2020; 9: 139-146.
- 7) FLIER JS. COVID-19 is reshaping the world of bioscience publishing. *Statnews.com*, March 23, 2020. Accessed April 25, 2020 (<https://www.statnews.com/2020/03/23/bioscience-publishing-reshaped-COVID-19/>)
- 8) TOPF J, SPARKS M, PHELAN P, SHAH N, LERMA E, GRAHAM-BROWN M, MADARIAGA H, IANNUZZELLA F, RHEAULT M, OATES T, JHAVERI K, HIREMATH S. The evolution of journal club: from Osler to Twitter. *Am J Kidney Dis* 2017; 69: 827-836.
- 9) BREU A. Why is a cow? Curiosity, tweetorials, and the return to why. *N Engl J Med* 2019; 381: 1097-1098.
- 10) FORGIE S, DUFF J, ROSS S. Twelve tips for using twitter as a learning tool in medical education. *Med Teach* 2013; 35: 8-14.
- 11) CHO D, COSIMI M, ESPINOZA J. Podcasting in medical education: a review of the literature. *Korean J Med Educ* 2017; 29: 229-239.
- 12) TWEETBINDER TWITTER ANALYTICS BLOG - #COVID-19 19 TWITTER EVOLUTION. Accessed May 20, 2020. (<https://www.tweetbinder.com/blog/COVID-19-coronavirus-twitter/>)
- 13) MCGRATH J, TAEKMAN J, DEV P, DANFORTH D, MOHAN D, KMAN N, CRICHLAW A, BOND W. Assess competence for emergency medicine learners. *Acad Emerg Med* 2018; 25: 186-195.
- 14) ROBLES J, AGGARWAL G, AGGARWAL S. Representation of specialties in Coronavirus Disease 2019 (COVID-19) research: analysis of published literature in the first 3 months. *Eur Rev Med Pharmacol Sci* 2020; 24: 5810-5812.