Online public interest in common malignancies & cancer screening during the COVID-19 pandemic in the United States

Samuel A. Cohen, Shayan Ebrahimian, Landon E. Cohen, Jonathan D. Tijerina

Corresponding author
Samuel A. Cohen
Stanford University School of Medicine, 291 Campus Drive, Stanford, CA, 94305, United States of America

1st Editorial decision
28-Sep-2021

Ref.: Ms. No. JCTRes-D-21-00139
Online Public Interest in Common Malignancies & Cancer Screening During the COVID-19 Pandemic in the United States
Journal of Clinical and Translational Research

Dear Mr. Cohen,

Reviewers have now commented on your paper. You will see that they are advising that you revise your manuscript. If you are prepared to undertake the work required, I would be pleased to reconsider my decision.

For your guidance, reviewers' comments are appended below.

If you decide to revise the work, please submit a list of changes or a rebuttal against each point which is being raised when you submit the revised manuscript. Also, please ensure that the track changes function is switched on when implementing the revisions. This enables the reviewers to rapidly verify all changes made.

Your revision is due by Oct 28, 2021.

To submit a revision, go to https://www.editorialmanager.com/jctres/ and log in as an Author. You will see a menu item call Submission Needing Revision. You will find your submission record there.

Yours sincerely

Michal Heger
Editor-in-Chief
Journal of Clinical and Translational Research

Reviewers' comments:

Reviewer #1: 1. This study used google trends to quantify public interest in six types of cancer and screening method. Comparing the data search four years (2016-2019) vs one year (2020). Authors found significantly decreased public interest in the months of April and May (beginning of COVID-19). Overall the study may be on interest, however there are relevant methodological flaws that need more explanation.
2. The authors need to explain the purpose of combination of three years. Why not compare 2016,2017,2018 and 2019 separately with 2020?
3. Only one keyword was used for each cancer screening. However there are few keywords that related to mammogram such as mammography screening , breast cancer screening and mammography. Is the any justification, why this keywords are selected?

Reviewer #2: Thank you for giving me the opportunity to review this very interesting and relevant manuscript. The utilization of Google Trends to assess the engagement of the public with cancer-related information during the first year of the COVID-19 pandemic was an innovative approach to understand how this event affected cancer as a priority. As you point in your discussion and conclusions, this tool will be valuable to continue investigating public awareness and information exchange regarding cancer themes in the ongoing pandemic and for future ones, to ensure cancer screening uptake and similar outcomes return to pre-pandemic levels.

I only have a minor comment regarding your tables. On Tables 1-10, you have column "Mean RSV, 2015-2019" while I understood from your Methods section and Table titles that you covered years 2016-2019 for the comparison. In addition, on Table 3 (Lung Cancer) and Table 4 (Prostate Cancer) the p-values of both columns and all rows are exactly the same except for BH-Adjusted P Value in June. Is this an uncanny coincidence or was there a mistake when transcribing to the tables?

Authors' response

September 29, 2021

RE: Revision JCTRes-D-21-00139

Dear Dr. Heger,

Thank you for your consideration of our manuscript entitled, "**Online Public Interest in Common Malignancies and Cancer Screening During the COVID-19 Pandemic in the United States**".

We are grateful for the reviewers' constructive comments. We also thank the reviewers for their thorough critiques that have been helpful in improving the revised manuscript. Below are point-by-point responses to the reviewers' comments. Reviewer comments are shown first and italicized:

Reviewer #1

1. The authors need to explain the purpose of combination of three years. Why not compare 2016,2017,2018 and 2019 separately with 2020?

Thank you for this insightful question. There are a few reasons why we chose to combine 2016-2019 and compare to 2020. First, previous studies have shown that there is annual variation in public interest in various malignancies due to media driven events such as celebrity diagnoses or deaths. As such, if we compared each year separately with 2020, average search volumes could be skewed by large spikes in popularity that may occur as a result of media coverage. By aggregating the years 2016-2019, the effects of temporary spikes in search volumes as a result of media events on mean relative search volume were less severe. We feel that averaged volumes from 2016-2019 are less skewed and a more accurate representation of typical search interest in the years 2016-2019 when compared with the alternative of comparing each year individually. Additionally, another reason we chose this methodology is because we partly modeled our study based on two prior studies that compared Google search volumes pre-pandemic to search volumes during the pandemic, one study related to orthopaedics and one study related to cancer screening. Both of the previously published papers utilized the methodology of grouping the years prior to the pandemic, so we felt that there was sufficient justification to mimic their protocol in our paper. The two aforementioned studies are reference numbers 16 and 26 in our paper.

2. Only one keyword was used for each cancer screening. However there are few keywords that related to mammogram such as mammography screening , breast cancer screening and mammography. Is the any justification, why this keywords are selected?

Thank you for this insightful question. While we acknowledge that there are many words related to each of the cancer screening modalities studied, we used the Google Trends tool in order to determine which screening-related term was the most popular, and this specific search term was used in our subsequent analyses. For example, when comparing Google search trends of "mammogram" to "mammography screening", "mammogram" was most

popular. As such, "mammogram" was used for our subsequently analysis. We used the "Related Queries" feature of the Google Trends tool in order to determine which screening term was the most searched for with regards to each of the respective screening methods. We do feel that this explanation would further enhance our paper, and we have added this clarification to the methods section of our manuscript.

"The specific search terms for the four cancer screening methods were selected as a result of their demonstrated popularity using the "Related Queries" feature of the Google Trends tool."

Reviewer #2

1. I only have a minor comment regarding your tables. On Tables 1-10, you have column "Mean RSV, 2015-2019" while I understood from your Methods section and Table titles that you covered years 2016-2019 for the comparison. In addition, on Table 3 (Lung Cancer) and Table 4 (Prostate Cancer) the p-values of both columns and all rows are exactly the same except for BH-Adjusted P Value in June. Is this an uncanny coincidence or was there a mistake when transcribing to the tables?

Thank you for catching these errors! With regards to the dates listed, we have changed all Tables so that 2016 is listed rather than 2015 in the Table header. With regards to Tables 3 and 4, there was an error when copying the tables over from a draft of the manuscript. Table 4 has now been updated with the correct values. We very much appreciate this feedback!

Thank you again for the constructive feedback regarding our manuscript. Should you need any further information or clarification from the authors, please do not hesitate to contact us.

Best regards,

Samuel Cohen

Samuel A Cohen

Stanford University School of Medicine

2nd Editorial decision
29-Sep-2021

Ref.: Ms. No. JCTRes-D-21-00139R1
Online Public Interest in Common Malignancies & Cancer Screening During the COVID-19 Pandemic in the United States
Journal of Clinical and Translational Research

Dear authors,

I am pleased to inform you that your manuscript has been accepted for publication in the Journal of Clinical and Translational Research.

You will receive the proofs of your article shortly, which we kindly ask you to thoroughly review for any errors.

Thank you for submitting your work to JCTR.

Kindest regards,

Michal Heger
Editor-in-Chief
Journal of Clinical and Translational Research

Comments from the editors and reviewers: