

## INTRODUCTION

Traditional metrics are recognized indicators of impact. However, web communication channels provide scientific community with various new indicators. The main aim of this study is to define the existence of a relationship between citation counts and altmetric mentions in the group of open access scholarly papers.

## METHODS

The study was divided into two stages. The first stage was to query the Web of Science Core Collection (WoS CC) for open access articles in the field of occupational safety and health (N=866). Citation counts were collected for all papers. The second stage of the study involved the use of the Altmetric Explorer. The tool provided altmetric indicators for the papers that were assigned a DOI (N=833). The fact that it collects data using digital identifiers of the documents, makes Altmetric Explorer transparent. Altmetric Explorer collects data from different sources: news mentions, blogs, policy websites, Twitter, patent mentions, peer review mentions, Weibo mentions, Facebook mentions, Wikipedia mentions, Google+ mentions, LinkedIn mentions, Reddit mentions, Pinterest mentions, F1000 mentions, Q&A mentions, video mentions, syllabi mentions, Mendeley readers.

The chronological scope of the study covered the years 2013-2019. The data were analyzed using linear regression models. The data were collected on 3th of November, 2019.

## RESULTS

Analyzed articles collected 3,365 citation counts and 20,273 altmetric indicators. The highest number of indicators was provided by Mendeley – 15,454 and Twitter – 4,110.

Table 1. Altmetric indicators and citations counts of open access articles that were assigned a DOI in the field of occupational safety and health

Number of papers with DOIs	Number of papers with altmetrics indicators	Number of papers with Mendeley readers	Number of papers with Twitter mentions	Number of papers with citation counts
833	458	439	276	568

The number of citation counts of OA articles on occupational safety and health was highly dependent on both Mendeley readers and Twitter mentions. Highly significant relationships were as follows: linear regression of Mendeley readers and citations counts:  $R^2 = 24,28\%$ ,  $p < 0,0001$ ,  $y = 2.080 + 0.1038x$ ,  $n = 833$ ; linear regression of Twitter mentions and citation counts:  $R^2 = 1.25\%$ ,  $p < 0,0012$ ,  $y = 3.725 + 0.0460x$ ,  $n = 832$ ).

## CONCLUSION

Conducted analysis revealed that citation counts of open access papers on occupational safety and health are dependent both on Twitter mentions as well as Mendeley readers.

# Exploratory study of a relationship between citation counts and altmetric indicators in open access scholarly papers on occupational safety and health

Keywords: bibliometrics, altmetrics, open access, linear regression, citation counts, Twitter

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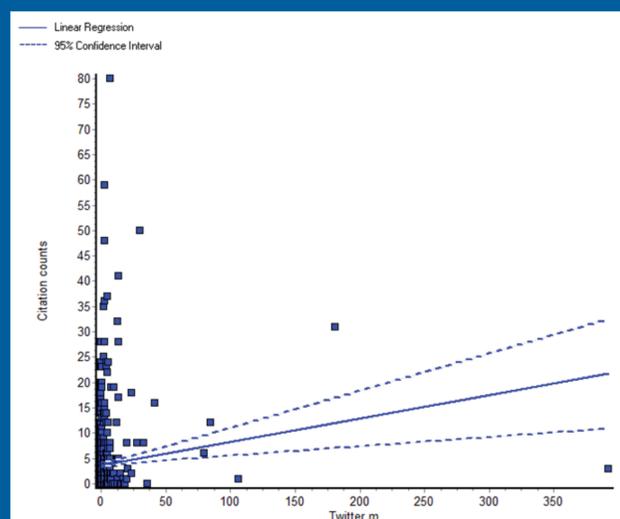
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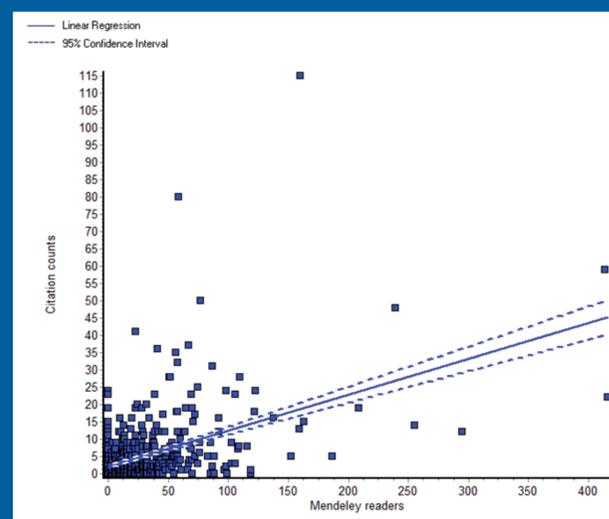
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1) Twitter mentions and Citation counts

Spearman correlation:  $r_s = 0.178$ ,  $p < 0,0001$ , extremely important correlation.



2) Mendeley readers and Citation counts

Spearman Correlation:  $r_s = 0.370$ ,  $p < 0.0001$ , correlation extremely significant.

## REFERENCES

- Ortega, J. L. (2016). To be or not to be on Twitter, and its relationship with the tweeting and citation of research papers. *Scientometrics*, 109(2), 1353–1364. <http://doi.org/10.1007/s11192-016-2113-0>
- Robinson-García, N., Torres-Salinas, D., Zahedi, Z., & Costas, R. (2014). New data, new possibilities: exploring the insides of Altmetric.com. *El Profesional de La Información*, 23(4), 359–366. <http://doi.org/10.3145/epi.2014.jul.03>
- Thelwall, M. (2016). Interpreting correlations between citation counts and other indicators. *Scientometrics*, 108(1), 337–347. <http://doi.org/10.1007/s11192-016-1973-7>