

An Introduction to Altmetrics

Mohsen Rezaeian¹

In addition to evaluating the performance of researchers, typically measured by the frequency with which their articles are cited by peers, it is vital to understand the social and practical impact that a research work leaves behind (1). Scientometric indicators, such as the h-index and other citation-based metrics, which assess the impact of scientific articles based on post-publication citations, involve time-consuming calculations (2). These indicators are dedicated to assessing the impact of scientific articles within academic and research environments and are unable to measure the social dimensions of research impact (3).

The ever-increasing growth of social networks such as X (formerly Twitter), Facebook, and LinkedIn, as well as scientific blogs such as the PLOS and Nature blog networks, makes it possible to calculate and examine the social and practical impact of a research article immediately after its publication (4). Therefore, given the importance of examining the social and media impact of research, “Altmetrics” was developed. The term “Altmetrics” is derived from a combination of the words “Alternative” and “Metrics” (5). Altmetrics provides a novel and more precise way to measure the impact of scientific articles published in journals (5).

The Altmetric Attention Score (AAS), calculated by the official website (Altmetric.com), seeks to analyze the dissemination pathway, knowledge penetration, and the speed of the influence of scientific articles published in media, social networks, and scientific blogs. Although the method for calculating the Altmetric Attention Score is somewhat complex, the number of times an article is mentioned in social networks and scientific blogs is of fundamental importance in this calculation (6). To display the Altmetric Attention Score, a colorful “donut” chart is used. In this chart, each color represents a different source or social network, and each segment reflects the weight and level of attention that the source has dedicated to the article (Figure 1).

In the Altmetric Attention Score, the type of social network or scientific blog also results in different weights being assigned to the mentions of scientific articles (7). The highest weight and importance are allocated to coverage in official news outlets (8 points) and blogs (5 points), while policy documents, clinical guidelines, and Wikipedia occupy the next tier, and activity on social networks (such as X and Reddit) receives the lowest weight (0.25 points) (8).

For example, if a researcher’s article is mentioned twice in policy documents and four times on social network X, the mentions in policy documents receive a weight of 3 ($2 \times 3 = 6$), and the mentions on social network X receive a weight of 0.25 ($4 \times 0.25 = 1$). Ultimately, their sum is 7 ($6 + 1 = 7$), which is displayed in the center of the colored donut chart. The colored chart will also contain the two colors associated with the sources: purple for policy documents and light blue for the social network X (Figure 1).

Figure 1: a) Colors of the Altmetric Attention Score donut, b) An example of an Altmetric Attention Score colored chart for an article.

(Adapted and translated from the official Altmetric.com website (7))

Therefore, since the impact of a scientific or research article cannot be considered solely based on citations or the extent of attention it receives within academic and scholarly environments, the Altmetric Attention Score donut chart provides a clear and comprehensive picture of the scope and diversity of online attention toward a research work. Given the increasing importance and application of altmetrics, the *Journal of Rafsanjan University of Medical Sciences* will soon provide a more comprehensive introduction to them in a full scientific article.

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