LETTER TO THE EDITOR

The Internet’s Interest in Autism Peaks in April: A Google Trends Analysis

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To the editor:

Health awareness events include interventional strategies that are intended to raise public interest and awareness regarding specialized topics. Influencing the placement of information in the environment and maximizing exposure are main goals of every awareness campaign. According to Randolph and Viswanath, interventions utilizing mass media campaigns are designed to alter the normal trend in distribution of information available on the topic of interest, aiming to change the placement of information in the environment both quantitatively and qualitatively (Randolph & Viswanath, 2004).

The number of health awareness initiatives is increasing. In 2020, there were more than 300 worldwide campaigns (Vernon et al., 2021). These initiatives report excessive cost and resource usage. However, there is only minimal evidence to support the efficacy of these efforts (Purtle & Roman, 2015). An analysis of the effect of health awareness events, such as breast cancer or alcohol awareness initiatives, yielded disillusioned results. Only 10 out of 46 selected events resulted in an increased search frequency on Google (Hao et al., 2019). If health awareness events have an effect, it seemingly tends to be short lived (Havelka et al., 2020).

Since 1972, the Autism Society of America organizes a nationwide awareness event in order to assure that “all affected by autism are able to achieve the highest quality of life possible”, first as National Autistic Children’s week, later as Autism Acceptance Month in April. On April 2nd, 2008, the first World Autism Awareness Day was held by the United Nations (UN). It is one of only seven official health-specific days observed by the UN. The aim was to “encourage Member States to take measures to raise awareness throughout society” (United Nations, 2007).

Over the years, several different autism campaigns have been introduced. World Autism Awareness Day, World Autism Awareness Week, and the World Autism Awareness Month are all observed in the month of April. The hypothesis of our study was that these efforts in raising public interest should be reflected by an increase in online traffic in April compared to other months of the year.

In this study, data was assessed from the holding company, Alphabet Inc., offering the Web service Google Trends, the most popular search queries. For this study, queries on “autism” were examined from 2008 through 2021 without any regional limitations and without any translations into non-English languages. Google Trend results were provided as normalized so that the maximum is scaled to 100. Absolute figures on the number of searches are not provided. In order to compensate for the sampling errors introduced by daily subsampling of Google Trends instead of incorporating all search queries in its analysis, the data set to autism was acquired at nine varying times between January 27th and February 5th, 2022.

Based on this data, the monthly average values were determined for the period under review (2008 to 2021), as well as the sample standard deviation for statistical

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reliability. Next, the monthly values for all years under review were averaged to find a monthly value. The sample standard deviations were also determined from these values. Data were analysed by repeated measure ANOVA.

The results of the global searches on ‘autism’ are plotted in Fig. 1. The diagram shows the average values per month (red), statistical reliability, and the sample standard deviation (pink). These lines show an annually repeating pattern with a peak in April. This pattern becomes even clearer when the search queries for all years were considered per month (see Fig. 2, \( p = 0.00001 \)). The corresponding average values of the monthly groupings are listed in Table 1.

The data shows a significant increase of Google Searches annually in April. This pattern was consistent for all years between 2008 and 2021, when the first World Autism Awareness Week was declared by the UN. Only a few health awareness events have been able to prove such a positive effect (Hao et al., 2019). However, after the month of Autism Awareness, public interest by way of google searches declined again. This shows the importance of annually

![Google Trends on Autism](image1)

**Fig. 1** Google Trends records an annually repeating pattern for the search term ‘autism’ between 2008 and 2021

![Search Queries for 'Autism'](image2)

**Fig. 2** Searches for ‘Autism’ increase every year in April (plotted in dark blue). To exclude sampling errors by Google Trends, the data were collected several times and the offset of the sampling standard deviation was included in the diagram (plotted in light blue)
In the month of April, compared to the rest of the year, there is an increased interest in the topic of autism in Google Trends searches.

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|
| Average value | 56.4 | 60.5 | 65.4 | 81.1 | 58.9 | 53.0 | 51.8 | 52.2 | 58.4 | 59.2 | 56.9 | 49.3 |
| Sample standard deviation | 7.5 | 7.8 | 8.1 | 9.0 | 7.7 | 7.3 | 7.2 | 7.2 | 7.6 | 7.7 | 7.5 | 7.0 |

In conclusion, Google searches for autism significantly increase in April, the autism awareness month. There is a temporal relationship between the awareness campaigns and an increased public interest for autism.

**Author contributions**
Kordula Lang-Illievich: concept, data analysis, writing the manuscript. Johanna Lang: concept, data interpretation, writing the manuscript. Istvan S. Szilagyi: concept, data acquisition, data analysis, revising the manuscript. Torsten Ulrich: data acquisition, data analysis, approving the manuscript. Jolana Wagner-Skacel: revising the manuscript. Gabriela Repíšká: revising the manuscript. Helmar Bornemann-Cimenti: concept, data interpretation, revising the manuscript.

**Declarations**

**Conflict of interest**
All authors declare no conflict of interest.

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