

# Health Information-Seeking Behaviors about Attention Deficit Hyperactivity Disorder on the Internet and the Analysis of Top Ranking Websites

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## ABSTRACT:

Health information-seeking behaviors about attention deficit hyperactivity disorder on the internet and the analysis of top ranking websites

**Objective:** This study analyses the volume of searches conducted using Turkish keywords related to Attention Deficit Hyperactivity Disorder (ADHD) on internet search engines and the content of high-ranking websites in order to identify the interest of the public on ADHD.

**Method:** The Google AdWords Keyword Planner Tool was used to find out the related Turkish keywords and web sites listed on the first default results pages were analyzed.

**Results/Conclusion:** Although ADHD is a very common psychiatric disorder, our research reveals that public interest is not parallel with the prevalence of it, particularly with adult ADHD. The websites listed on the first results pages do not contain sufficient information on adult ADHD and only little content on these web pages is written by academicians or supported by scientific references. For a wider and more accurate public recognition of ADHD, academicians and professional practitioners should use the internet more proactively and effectively.

**Keywords:** attention deficit hyperactivity disorder, internet, search engine, consumer health information

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## INTRODUCTION

The internet has become the first source of reference for many people with health issues<sup>1</sup>. It can even be argued that it is possible that to get a general overview of almost anything we want within seconds from the internet. Such dissemination of and easy access to information bring about certain problems as well. The uncertainty of the accuracy and reliability of the information accessed via the internet and the possibility of the use of negative statements for treatments with proven efficacy to foster some treatment methods that are yet under investigation or with questionable efficacy render

the health information-seeking behaviors (HISBs) and examination of health information content on the internet to be important topics.

Attention deficit hyperactivity disorder in children has become more widely known in Turkey in the recent years. While some symptoms of ADHD, especially hyperactivity, diminish in adulthood, at least 70% of patients are reported to continue to be negatively affected by the disorder<sup>2,3</sup>. Adults with ADHD are only able to attain a lower socioeconomic status, encounter more problems in their professional lives, and change jobs more frequently<sup>4</sup>. Adults with ADHD suffer adjustment difficulties in social life, too, and they even divorce more and have more serious

issues with alcohol and other substances<sup>5-7</sup>. Barkley et al. have reported that adults with ADHD engage in reckless driving that may result in bodily injuries and commit more traffic offenses<sup>8</sup>. All these data establish the importance of the treatment of ADHD, particularly in adults. Despite this, adult attention deficit hyperactivity disorder is not adequately known and treated<sup>9</sup>.

When the destructive effects of ADHD and the fact that it is not sufficiently known and treated are considered, the power of the internet in informing the public should not be neglected. The behaviors of seeking for information on attention deficit hyperactivity disorder in children and adults on the internet search engine Google are examined, and the contents of the websites returned by the search engine on the first results page with the default settings are analyzed. The objective of this study is to identify to what scale the internet is currently used to access information on ADHD and analyzing the contents of the existing websites, to draw attention of the academia to the internet as a public information tool, and to prepare a ground for the development process of websites for greater recognition, and thus, a more effective treatment of ADHD.

## METHOD

Possible internet search keywords and keyword groups were first identified by the researchers by making guesses based on professional experience. The other keywords offered by the Google AdWords Keyword Planner Tool, suggesting that they are related to these search phrases, were also included into this list and the search volumes for all the keywords between January 1<sup>st</sup>, 2013 and January 31<sup>st</sup>, 2013 were identified using the tool. The websites returned by Google on the first default results page consisted of 10 URL's upon searches conducted using the 10 most frequently used keywords and groups of keywords. These were examined and considered from the following aspects:

1. By whom is the content of the website created?
  - a. Academician(s)
  - b. Specialist doctor(s)
  - c. Psychologist(s)
  - d. Coach(es)
  - e. Others
2. What is the purpose of the website?
  - a. Publicity for a private center or practitioner
  - b. Introduction of a particular method of treatment
  - c. Providing information on ADHD or other diseases or disorders
  - d. Others
3. What kind of information does the website contain?
  - a. Information on treatment with medications
  - b. Information on psychotherapies used to treat ADHD
  - c. Information on the symptoms of ADHD
  - d. Information on ADHD in children
  - e. Information on ADHD in adults
  - f. Others
4. Is the information on the website supported by scientific references?
  - a. Yes
  - b. No

## RESULTS

### Google Search Volumes Related to ADHD

Turkish keywords that may be related to Attention Deficit Hyperactivity Disorder and the search volume of these terms on the Google search engine are provided in Table 1. The total number of the searches depicted in Table 1 is 191.340. The phrases listed in this table contain only the ones with a search volume of 1000 and over due to space constraints. While it is impossible to specify what portion of these searches were conducted by different individuals with the data at hand, this information may well induce ideas on to what extent the Google search engine is used to obtain information on ADHD. In addition, very specific searches (on a special alternative therapy, searches conducted entering the name of a

particular physician or of a city) were not included in this table due to space constraints and as they are irrelevant to our topic.

When the searches that particularly contain age groups are examined, it is seen that while 12.433 searches in total focused on attention deficit hyperactivity disorder in infants, only 3.490 searches related to the disorder in adults were conducted. It can also be speculated that the majority of the searches with no age group specifically mentioned should be related to the disorder of those less than 18 years of age. Besides, it is also possible that some adults with ADHD

may be conducting searches related to attention deficit in children, believing that this is a childhood disorder. When these uncertainties are excluded and only the searches that explicitly and deliberately specified the age group are considered, it can be asserted that the quest for information on the internet regarding the disorder in adults is quite limited.

It is worth noting that the majority of the conducted searches are related to symptoms, tests, and treatment (“ilaç” (drug), “bitkisel” (herbal), “Ritalin”, “Concerta”). Although not specified here, there are searches conducted to access treatment specifying the name of a particular city or physician.

**Table 1: Monthly Search Volumes Related To Attention Deficit Hyperactivity Disorder on the Google Search Engine**

Keywords and Groups of Keywords Used in Google Searches	Average Monthly Searches
ADHD	27100
Attention deficit	27100
Hyperactivity	18100
Attention test	9900
Ritalin	9900
Distractibility	8100
Concerta	8100
Attention disorder	4400
Treatment of attention deficit	3600
Attention deficit hyperactivity	3600
Hyperactivity attention deficit	3600
Active child	2900
Signs of attention deficit	2900
Attention deficit treatment	2900
Attention deficit and hyperactivity	2900
Hyperactivity disorder	2900
Hyperactivity and attention deficit	2900
Attention deficit disorder	2400
Attention deficit hyperactivity disorder	2400
Attention disorder and hyperactivity	1900
Attention deficit and hyperactivity disorder	1900
Hyperactivity treatment	1900
Strattera	1900
Focusing attention	1600
Hyperactive child	1600
Concentration test	1600
Attention deficit in babies	1300
Attention deficit in children	1300
Attention deficit test	1300
Attention deficit in child	1000
Treatment of distractibility	1000
Attention deficit medications	1000
Attention deficit in adults	1000
What is hyperactive	1000
What is hyperactivity	1000
Metilfenidat	1000
Others	22340
TOTAL	191.340

**Content Analysis of Google Search Results**

Table 2 shows the evaluation results of content analysis for a total of 100 websites returned on the first default results pages on Google searches with the first 10 keywords and groups of keywords. Although the fact that the ranking of the results

**Table 2: An Analysis of the Top 100 Websites Returned upon the Searches Conducted with the First 10 Keywords and Groups of Keywords**

	Total*
<b>By whom is the content of the website created?</b>	
Academician(s)	7
Specialist doctor(s)	37
Psychologist(s)	19
Coach(es)	6
Others	35
<b>What is the purpose of the website?</b>	
Publicity of a private center or practitioner	38
Introduction of a particular method of treatment	6
Providing information on ADHD or other diseases or disorders	25
Others	38
<b>What kind of information does the website contain?</b>	
Information on treatment with medications	52
Information on psychotherapies used to treat ADHD	33
Information on the symptoms of ADHD	64
Information on ADHD in children	64
Information on ADHD in adults	20
Others	36
<b>Is the information on the website supported by scientific references?</b>	
Yes	26
No	74

\* The number of the websites that contain the specified content out of the 100 examined.

returned by the Google search engine may show some variations depending on different locations where searches are conducted was taken into consideration, we believe that the currently shown results can provide a sufficient idea for the purpose of this research. The total search volume of the first 10 keywords is 119.900, which constitutes 62.6% of the searches we have managed to obtain; therefore, it can be asserted that the examination we have conducted reflects the overall search results significantly.

The analysis shows that among the examined websites, only a small percentage (7%) were prepared by academicians and only 26% contain information supported by scientific references. A significant portion (38 out of 100) of the websites was prepared for the publicity of a private center or a practitioner. Attention deficit hyperactivity disorder in adults is mentioned in only 20 out of the 100 websites examined.

An examination of the results shows that about one-third of the websites returned on the first default results page were prepared by non-clinician persons or organizations (individuals, business people, publishing house, pharmaceutical companies, pharmacists, etc.). Among the results returned on the first default results pages, it is possible to encounter websites with publicity materials of pharmaceutical companies; websites that highlight the positive side of ADHD and stress the idea that ADHD is not a disorder; websites that underline non-first-line treatment regimens that are not supported by a sufficient level of evidence-based scientific data such as neurofeedback and diet therapy; forums where those on medication therapy exchange opinions; publishing house websites; and even portals of song lyrics.

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## DISCUSSION AND CONCLUSION

Today, patients are increasingly using the internet to access health knowledge. However, to be able to convey correct information to the public, websites with useful content need to have higher search engine rankings. The results of these study show that although there was more objective content and information based on scientific references about attention deficit hyperactivity disorder on certain websites prepared by academicians, most of these websites with useful content have lower search engine rankings and therefore, are not accessed by the majority of information-seekers. While one of the limitations of this study is that it only contains the searches conducted on the Google search engine, because Google is the most popular search engine in Turkey with a share of more than 95%, it can be argued that this study is reflective of the majority of the searches on the other search engines, as well. Considering the fact that internet search engines are tools used only when access to information becomes a necessity, it is worth remembering that there is a requirement to utilize other mediums such as written and visual media more effectively in order to create awareness and provide more accurate and useful information on ADHD. The academia should do what is required and become more knowledgeable about search engine optimization, in order to gain a competitive advantage with regard to higher search engine rankings to ensure that patients could access the correct information, knowledge, and data they are in need of (search engine optimization: developing the content and design of websites in ways suggested by search engines).

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