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The Historical Analysis of Prevalence and Public Perception of **ADHD** in Adults Within International News Coverage

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SUMMARY

Attention Deficit Hyperactivity Disorder, also known as ADHD, is a medical condition affecting one's ability to stay attentive and display impulsive behaviours. Although media coverage has extensively reviewed ADHD in children, there is a lack of exposure to ADHD among adults. Understanding the tone of widespread media coverage of ADHD can help better to understand the general public's perceptions of the disorder. The results showed that between 2000-2020, there was a significant increase in news coverage and a trend toward using more respectful descriptors of ADHD among adults.

ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) is a mental health disorder characterized by the inability to focus or control impulsive, hyperactive behaviour. The research manuscript investigates how the prevalence and language use of media coverage has changed in reporting ADHD among adults. Quantitative data was obtained from news articles published from the Nexis Uni database every 5-years from 2000 to 2020. The prevalence of the articles was determined by inspecting the number of publications during each respective period. The study investigated the language use of ADHD in adults by using the ADHD Descriptive Language (ADL) scale from 1 (derogatory) to 3 (respectful). Results showed an increase in the number of news articles published within each 5 -year time frame: 62, 86, 119, and 161 news articles between 2000-2005, 2005-2010, 2010-2015, and 2015-2020, respectively. Language use, determined from the ADL scale, showed a relative percent increase of 4.55%, 9.38%, and 14.6% between each period, respectively. The trend observed for the descriptive language is associated with improved public perception used for the disorder in adults. Further research is necessary to raise awareness and decrease existing prejudice regarding the prevalence and language use of adult ADHD in the media.

Keywords: Attention-deficit hyperactivity disorder, ADHD, public perception, news coverage, mental health

INTRODUCTION

Attention Deficit Hyperactivity Disorder (ADHD) is attributed to the inability to focus or control impulsive, hyperactive behaviour, typically diagnosed in childhood.3 Scientists discovered the first case of ADHD in children in 1902, and ever since, researchers have regarded ADHD as a well-known issue solely within the youth population.⁵ However, extensive research has suggested that the disorder was prevalent within adults, which led to the recognition of its incidence as a universal condition in 1994.1 Some of the challenges surrounding the diagnosis and prevalence of ADHD may be due to the disorder's variation in its manifestation. Typically, ADHD causes one or more of the following behaviours; inattention, impulsiveness, and hyperactivity.3 Common symptoms of ADHD include issues remaining focused over long periods, difficulties managing time, inability to complete tasks,

fidgeting, inability to wait, being easily distracted and being talkative.3 As a result, those with ADHD often have trouble performing well in school, work and socially.3 Individuals with ADHD tend to have lower selfesteem, linked to a higher risk of substance abuse.3

The symptoms of ADHD can progress throughout one's lifetime, which can disrupt individuals' everyday functions and activities.8 The majority of diagnoses are made based on a child's academic performance in preschool to elementary school, as they display disruptive or inattentive behaviours.8 Additionally, over 70% of children with ADHD also display other diagnoses that impact their everyday functions, including oppositional defiant, learning, and anxiety disorders.8 In approximately 65% of cases, many symptoms associated with ADHD will persist up to 25 years of age.9 Majority of these symptoms are persistent within adulthood and compromise the daily functioning of impacted individuals.8 More than 80% of adults with ADHD are undiagnosed and continue to live without the proper treatments.¹¹⁰ Undiagnosed adults have experienced difficult upbringings, higher incarceration rates, and comorbidities such as drug abuse and other health-related disorders.¹¹¹ Proper diagnosis as adults can often be accompanied by effective treatment plans to improve one's daily functions.

Several treatment options are available for individuals with ADHD during their early childhood, adolescence, and adult stage. For children around six years of age up to 12, the American Academy of Pediatrics (APP) recommends a holistic treatment plan that involves teaching the affected child behavioural and organization skills within a school setting and providing parental education.¹² According to the United States Food and Drug Administration, medication containing stimulants such as methylphenidate increases the dopamine in the brain to promote calmness while reducing the disorder's symptoms.¹³ Non-stimulant medications, including Intuniv and Strattera, are alternative medications approved in children as young as six.13 Around one-third of ADHD in children persists into adulthood, which adds to a total of 4% of the adult population with the disorder (F,G).12,13 The recommended treatment for adults with ADHD involves the biopsychosocial intervention model, combining psychosocial treatments and the appropriate medication.¹⁴ Psychosocial treatments can include cognitive behavioural therapy and coaching geared towards ADHD.14 The recognition of ADHD as a disorder is relatively new with its addition to the Diagnostic and Statistical Manual of Mental Disorders (DSM) in 1968.15 The DSM used descriptors such as "overactivity" and "short attention span" to initially categorize children with ADHD.¹⁵ Modern genetic research has shown that the disorder is heritable in around 70% of cases; however, this requires more research to understand the disorder's origin.¹⁵

This paper focuses on scrutinizing the changes in how media outlets have communicated the existence of ADHD in adults. This subject matter is of interest as it allows us to study trends in the way ADHD in adults is portrayed across news outlets globally. Thus, emphasizing the need for further research and detailed documentation in addition to existing literature. Articles discussing ADHD in adults within the 2000-2020 period were analyzed. We aim to discover how media coverage of adults with ADHD has changed over time using our findings. To maximize the accuracy of our results, a detailed procedure was developed to select appropriate and relevant research articles to obtain data. After a thorough analysis, the collected information was used to visualize the results effectively.

We hypothesize that there is an increasing shift in its reporting and a positive shift in the language used within journals. We believe a shift in the perspective regarding ADHD in adults has led to increased accessibility of resources and an opportunity for a more indepth analysis of the disorder. Moving forward, we are hopeful that novel discoveries can help educate the public and raise awareness about the severity of the issue and its ability to influence all age groups.

METHODS

The purpose of the research manuscript is to investigate how the prevalence and language use of media coverage have contributed to the shifted public perception of adults with ADHD.

Source of Data

Qualitative and quantitative data was retrieved from the following search engine: Nexis Uni, which provides access to thousands of sources that cover a wide range of subject areas, including international news. Other reliable sources covering neurodegenerative disorders were considered, including Globe and Mail and The Guardian and Observer. These respective sources contained an insufficient number of news articles which met the selection criteria and thus were discarded.

Search Criteria and Process

The data will be collected based on the following criteria: 1) titles of the papers, including the following keywords: "Adults," AND "ADHD," OR "ADD," OR "Attention deficit hyperactivity disorder." 2) the time frame was for 5-year intervals between 2000-2020: every 5 year period was considered from the beginning of that year till the end of the fourth year. I.e., for 2000-2005, the timeframe was between January 1, 2000, until December 31, 2004, 3) Newspapers only were selected 4) English only was selected 5) Excluded stocks stories, non-business news and obituaries 6) Turn on the removal of "News Group Duplicate" 7) The first five articles regarding language use within each period were picked based on the relevance category.

Data Synthesis

A) Prevalence

One of our goals for this manuscript is to investigate the number of articles published each year regarding adults with ADHD. The prevalence of articles was captured by analyzing the number of articles published at 5-year intervals starting from 2000 to 2020. The published articles obtained using guidelines were mentioned in the search criteria and process. The number of results was then recorded as a numerical value.

B) Language use

The use of language to describe ADHD is key to investigating the public perception of the disorder among adults. Within the four time periods selected (2000-2005, 2005-2010, 2010-2015, and 2015-2020), we read through the first five articles categorized based on relevance. Adjectives describing ADHD and adults with ADHD were written down for each paper and included in an extensive list. Each adjective was then categorized to create the ADHD Descriptive Language Scale (ADL Scale), whose possible values range between 1 and 3 (1 involving derogatory adjectives such as annoying, mental illness, and disease, 2 involving neutral adjectives such as spontaneous, impulsive, and hyper-focused, and 3 involving respectful adjectives such as creative, hardworking, and innovative). For each article, an average score within the ADL scale will be calculated based on the adjectives present, considering the number of adjectives used and each adjective's ADL Scale score. It's also important to note that all adjectives in the article will be factored into this average, even if the same term appears multiple times. These averages will then be compared on MS Excel to analyze the possible language trends used when describing ADHD in adults within the four time periods ranging from 2000 to 2020.

RESULTS

A) Prevalence

A total of 427 articles were found between 2000-2020 using the search criteria. The data synthesis search criteria retrieved a total of 62 articles between 2000-2005, 86 articles in 2005-2010, 119 articles in 2010-2015, and 161 articles in 2015-2020.

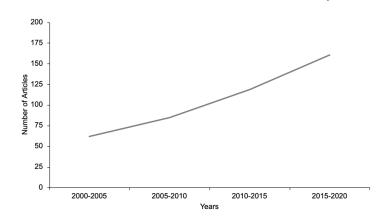


Figure 1. Number of articles published within each period. Line graph indicating the number of news articles published by the database Nexis Uni regarding adults and ADHD between the years 2000-2020 in 5-year intervals. The timeframe for the 5-year interval was set between January 1 of the first year and

ended on December 31 of the fourth year. The line graph was created using Microsoft Excel 2021.

B) Language use

The news articles from Nexis Uni database (n = 20) were individually analyzed based on the ADL Scale. The scores from the five news articles within each time period combined as an average. The average scores obtained for the 2000-2005 period, 2005-2010 period, 2010-2015 period, and 2015-2020 period were 1.64, 1.71, 1.88, and 2.15, respectively. This increasing trend is further seen in Figure 2. Over time, the percent increase between the four time periods was 4.55%, 9.38% and 14.6%, respectively. This trend is visualized by a bar graph in Figure 3, showing an increase in the ADL Scale within each progressive period.

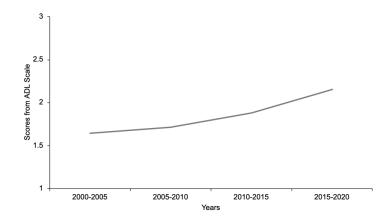


Figure 2. Scores from the ADL Scale within each period. A line graph showing the average scores of five news articles within each time frame, from 2000 to 2020, based on the ADHD Descriptive Language Scale. The line graph was created using Microsoft Excel 2021.

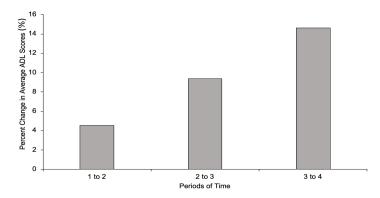


Figure 3. Percent change in average ADL scores between periods. A bar graph illustrating the difference in percent change of the average scores derived based on the ADHD Descriptive Language Scale from time period 1 to 2 (2000-2005 to 2005-2010), time period 2 to 3 (2005-2010 to 2010-2015), and from time period 3 to 4 (2010-2015 to 2015-

2020). The bar graph was created using Microsoft Excel 2021.

DISCUSSION

The objective of the present study nationwide study was to explore changes in the representation of news articles covering ADHD in adults from the year 2000 through 2020. There were two objectives in conducting this study. First, we examined trends in the prevalence of news articles published discussing ADHD in adults within the selected time period. Following this, we assessed how the language describing this mental disorder shifts public perception regarding ADHD in adults during the selected period.

The findings indicate a surge in articles published regarding adults and ADHD over the past two decades. The greatest rise was observed in the number of articles published from 2015 to 2020 with a 36% increase. These findings entail that ADHD in adults is gathering more attention, and an increased number of articles now discuss how ADHD can be present in adults. Additionally, a positive increase was found in the language used to address ADHD in adults over the past two decades. According to the ADL scale, results showcase an increase in the usage of positive and respectful descriptive words over time while discussing the prevalence of ADHD in adults. Specifically, the most rapid increase in positive language use was observed from 2015 to 2020. These observations may suggest an increase in the acceptance of ADHD as a disorder present among adults. It is also plausible that there is a positive shift in the coverage style of articles and reduced stigmatization.

Following the assessment of news articles published by Nexis Uni, there appears to be an increase in the overall number of articles published within the database discussing ADHD in adults. These results may suggest increased awareness and respectful language used for the topic. Diagnosis of ADHD at early stages is essential to controlling the symptoms and preventing worsening with age. Research by Joffe⁶ suggests early diagnosis is key to creating an accommodating environment. Early screening leads to proper treatment intervention to implement necessary adjustments to rapidly improve symptoms in a short amount of time.⁶ As most cognitive development occurs in childhood, children can adapt to environmental changes swiftly compared to adults.⁶ Thus, spreading awareness can help normalize the onset of ADHD, encouraging patients to seek testing and preventative measures. Joffe⁶ mentions that hesitancy in seeking treatment leads to more severe cases of ADHD. Additionally, several longitudinal studies have been conducted to examine the different types of damage that can result from not being diagnosed promptly.2 Findings from these studies point to increased impairments and complications of mental illness that are difficult to tackle later in life.²

According to a study conducted by Brown and Bradley¹⁶, derogatory terms used to describe mental illnesses fuel stigma and negative attitudes toward patients. Therefore, the negative language used to describe ADHD in the media leads to hesitancy to seek out testing. Although the findings elucidate an increase in the positive language used for adults with ADHD, further improvements can be made. Raising awareness globally regarding the prevalence of ADHD can help bolster familiarity with the disorder.¹⁷ Research by Corrigan and Nieweglowski¹⁷ indicates an inverse relationship between familiarity and stigma. Therefore, as familiarity with ADHD in adults increases, the public stigma surrounding it will decrease. Stigmatization regarding disorders is based on public knowledge. People develop conceptions about mental illness through personal experience, social interactions, and the media's portrayal of individuals with mental illnesses.7 The development of misconceptions leads to stereotyping, where others devalue and reject people with mental illnesses such as ADHD. People with ADHD are then subject to exclusion from opportunities, low selfesteem, and constricted social networks.7 Based on these consequences, reducing the stigma surrounding adults with ADHD is vital to help improve their health outcomes. The first step to creating an accepting atmosphere is altering how people refer to ADHD. A nurturing environment involves using respectful language to acknowledge the individual rather than the condition itself. Supporting ADHD patients and shifting towards a positive community that fosters inclusivity will improve their life satisfaction and encourage optimism.

LIMITATIONS AND NEXT STEPS

While this study revealed many insights about changes in language describing ADHD, it is partially limited by the methodology. The ADL Scale was created after a read-through of five articles on the topic of ADHD. Adjectives were then categorized based derogatory, neutral, or respectful connotation. The first issue with this system is that a read-through of five articles may not grasp all of the descriptive words used to describe ADHD. Synonyms or other similar descriptive words may have been omitted due to their absence in the first five articles. The selective word choice list also reduces the reproducibility of this study. Another limitation is the subjectivity of the words to specific categories. Although words can have a specific connotation, or defined meaning, depending on the placement or circumstance they are presented their meaning can completely change. To illustrate, the word 'perfect' can be used to describe excellence in nature. However, when used in a way such as 'perfect disaster,' the connotation of the sentence becomes negative. Therefore, having a rigid categorization system of adjectives may work most of the time but is not guaranteed in its effectiveness due to possible variations in word use. Lastly, there are confounding factors that may have skewed the results to some degree, specifically concerning the prevalence of ADHD in the media. The study focuses on ADHD prevalence between the years 2000 and 2020. The important thing to note is the increase in internet use and access to information. With the rise of the internet in the early 2000s, the production of resources about ADHD in adults has increased.

Further research must be done regarding the prevalence of adult ADHD in the media and the connotations surrounding it to raise awareness and reduce existing prejudice and discrimination. Future directions regarding research on this topic would be the creation of a sentence-based undertone analyzer to better recognize derogatory, neutral, or respectful discussions about ADHD. For example, one existing program that can be utilized for sentiment analysis and language detection is the AYLIEN software. Furthermore, confounding variables such as a natural increase in prevalence should be explored. This can be done by producing a formula to estimate the expected increase in the topic (based on trends) and comparing it to the increased adult ADHD in media.

CONCLUSION

In conclusion, the findings demonstrate an overall increase in the number of articles published regarding ADHD in adults in international news since the year 2000. Specifically, the research and discussions of relevant scientific material have shown to increase most rapidly from 2015-2020. These results may suggest an increase in awareness regarding ADHD as a disorder not specifically affecting children, but one that is present in adults as well. Furthermore, scores from the ADL analysis reveal a rise in the respectful language being used to discuss ADHD in adults. The greatest increase in positive descriptive word usage was observed from 2015-2020, which proposes an increase in acceptance of ADHD in adults. However, future research should focus on a wider sample range and make use of an automated tone analyzer to observe further the increase in the literature about ADHD in adults and its acceptance within society. Doing so will help bring attention to this area of concern and reduce the associated stigma, which will help promote proper diagnosis and treatment of patients.

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ARTICLE INFORMATION

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APPENDIX

Table 1. The table shows the number of news articles published by the database Nexis Uni regarding adults with ADHD between the years 2000-2020 in 5-year intervals. The timeframe for the 5-year interval was set between January 1 of the first year and ended December 31 of the last year.

Nexis Uni Articles Relating to ADHD in Adults from 2000					
5-Year Interval	Number of News Articles				
2000-2005	62				
2005-2010	85				
2010-2015	119				
2015-2020	161				

Table 3. The table shows the number of news articles published by database Nexis Uni regarding adults and ADHD between the years 2000-2020 in 5-year intervals. The timeframe for the 5-year interval was set between Jan 1 of the first year and ended Dec 31 of the last year.

ADL Scale Scores									
Years	Averages	Total Averages							
2000- 2005	1A: 1.5909	1B: 1.6666	1C: 1.5238	1D: 1.8235	1E: 1.6111	1.6432			
2005- 2010	2A: 1.5000	2B: 1.6923	2C: 1.7059	2D: 1.6667	2E: 2.0250	1.7179			
2010- 2015	3A: 1.6111	3B: 2.0270	3C: 2.0769	3D: 2.0000	3E: 1.6800	1.8790			
2015- 2020	4A: 2.0566	4B: 1.5862	4C: 2.3333	4D: 2.6061	4E: 2.1852	2.1535			

Table 2. The table shows the names of all news articles retrieved from Nexis Uni between the years 2000-2020 in 5-year intervals. The title of these articles contained the keywords: "Adults" AND "ADHD" OR "ADD" OR "Attention deficit hyperactivity disorder". These articles were sampled using our search criteria and further analyzed with the ADL scale.

Nexis Uni Articles Used for ADL Scale Analysis									
5-Year Interval	Nexis Uni Article Names								
2000-2005	1A: The hyperactive adult Most people associate atten- tion deficit hyperactive disorder with kids. But what happens when those young- sters grow up?	iB: YOUR HEALTH; Growing up restless; hyper ac thought attention deficit/hyper activity disorder affected only youngsters. Researchers now believe millions of adults have the ailment, and a new drug offers some of them hope.	1C: Attention, please; With experts' support that ADHD is real, millions of adults are taking medication for a disorder once associated only with kids	1D: Adults distracted by ADHD	1E: ADD affects adult population				
2005-2010	2A: ADHD has serious consequences on multiple aspects of adult life	2B: I've been told I suffer from ADHD (that's attention deficit hyperactivity disorder); It's a condition associated with children, but Nicola, 36, is one of many adults who blame it for their problems. But are they actually ill?	2C:Adults living with ADHD studied; ATTENTION DEFI- CIT HYPERACTI VITY DISORDER	2D: Help for adults with ADHD	2E: Understanding adult ADD/ADHD				
2010-2015	3A: Challenges of adult ADHD	3B: ADULTS LIVING WITH ADHD DEAL BETTER WITH SUPPORT	3C: When having a hundred things to do is a disorder; Are you running late and is your 'to-do' list driving you crazy? You could, like me, have adult ADHD, says Helen Croydon	3D: Adults can suffer from ADHD	3E: Help for ADHD adults				
2015-2020	4A: I'm not lazy, I have ADHD: Adults can have the condition too; Adults can have the condition too, which involves difficulty focusing, being impulsive and hyperactive, say doctors	4B: Think you're depressed? It could ADULT ADHD	4C: Married to ADHD; When her husband's eccen- tric quirks were diagnosed five years ago, Lucy Nichol found it strengthened their marriage and shed light on a condition not often associat- ed with adults	4D: Study finds high levels of creativity, originality in adults with ADHD	4E: 'My ADHD diagnosis made me a high flyer'; As adult cases soar, Sandra Scott says discovering she had the condition in her 40s only spurred her on to greater business success				