

Epidemiological Trends in Adult ADHD Diagnosis across Northeast Pennsylvania from 2000 to 2023

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Introduction:

- Attention deficit hyperactivity disorder (ADHD) is a persistent, pervasive neurodevelopmental disorder, characterized by hyperactivity, impulsivity, and inattention. (Johnson et al 2020)
- National studies have seen increases in the prevalence of ADHD from 6.1 to 10.2% from 1997 to 2016. (Bozinovic et al 2021)
- Changes in the prevalence and diagnosis of ADHD has been attributed to an increase in awareness of the condition through social media platforms, research, and better medical training.
- Although it was once believed that this condition only affected children, it is now widely acknowledged that in a substantial number of cases, both symptoms and any resulting impairment will last into adulthood. (Johnson et al 2020)
- The purpose of this study is to better understand the epidemiological trends of those who have been diagnosed with adult ADHD in the Northeastern Pennsylvania (NEPA) region from 2000 to 2023.
- This study will help facilitate better clinical decision making and care provided to patients with adult ADHD or those who have yet to be diagnosed.

Methods:

- In this retrospective cohort study, demographic data [MRN, age, sex, race, ethnicity] were collected from several Geisinger community medicine clinics in the Northeast Pennsylvania region. Year of diagnosis and age of diagnosis were also collected in the data set.
- Inclusion Criteria: Established patients in the age range of 18 to 65 years old in the community medicine clinics, newly diagnosed with ADHD after 18 years of age, and no history of stimulant use [methylphenidate, amphetamine].
- Exclusion Criteria: Diagnosed with ADHD during childhood, new encounter patients, patients who present to the clinic for the first time for ADHD diagnosis.
- Years of Study: 2000-2023
- Total Number of Participants: 5380

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Results :

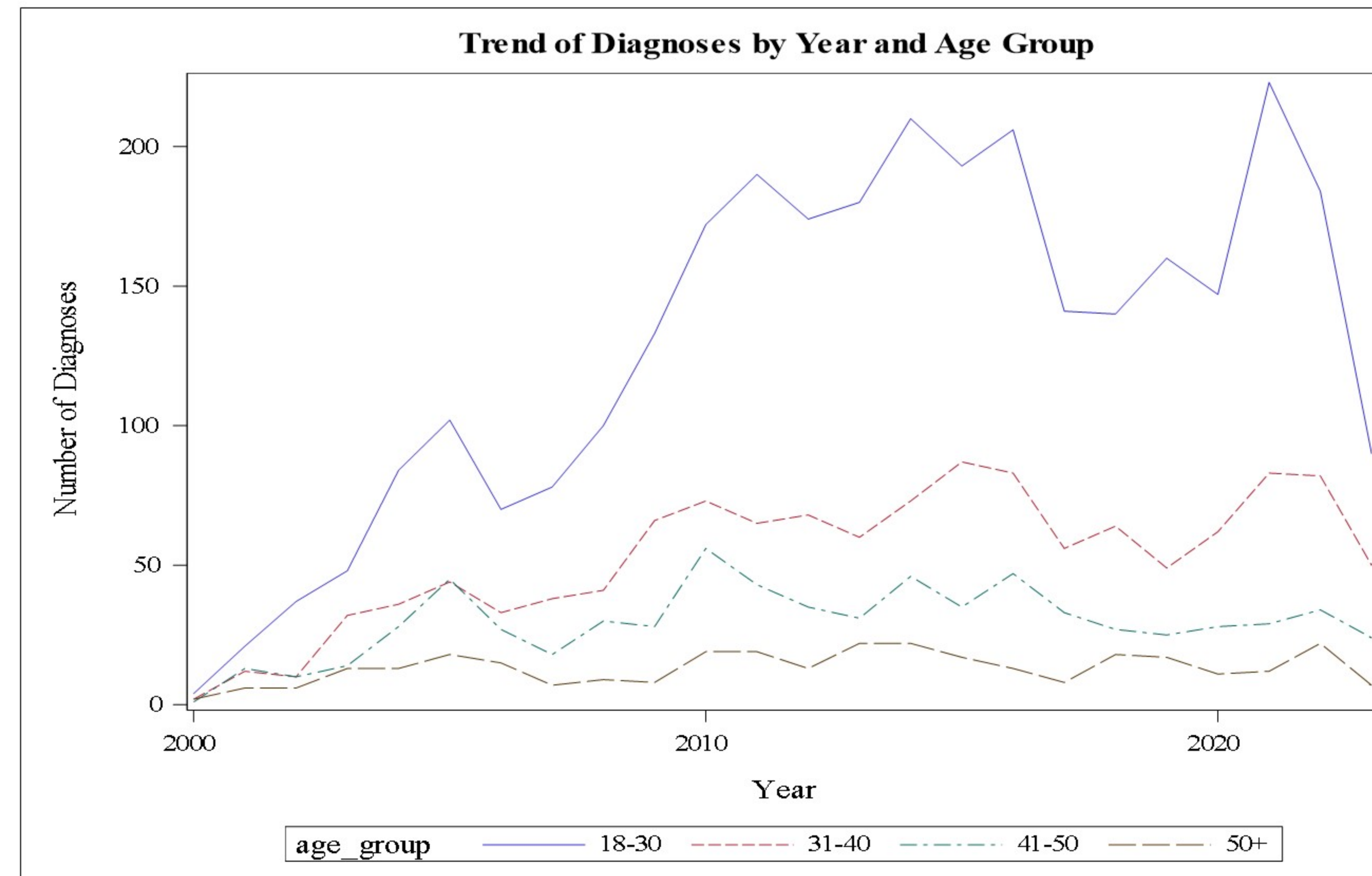


Figure 1: Trend of ADHD Diagnoses by Age Group From 2000 to 2023 in Northeastern Pennsylvania. Individuals in the 18-30 age group have been consistently diagnosed at higher rates than other groups. The years 2020 and 2021 showed a sharp increase in ADHD diagnoses for all age groups. Further studies are needed to be done to determine potential causes for increases in diagnoses during this time-period.

Age Group, n (%)	Total (N= 5380)	Female (N= 2836)	Male (N=2544)
18-30	3087 (57.4%)	1502 (53.0%)	1585 (62.3%)
31-40	1269 (23.6%)	727 (25.6%)	542 (21.3%)
41-50	707 (13.1%)	420 (14.8%)	287 (11.3%)
50+	317 (5.9%)	187(6.6%)	130 (5.1%)

P < 0.001

Age	Total (N= 5380)	Female (N= 2836)	Male (N=2544)
Mean [SD]	30.60 [10.636]	31.65 [10.692]	29.44[10.453]
Median [IQR]	28.00 [21.00, 37.00]	30.00[22.00, 39.00]	27.00[21.00, 35.00]
Range	18.00, 64.00	18.00, 64.00	18.00, 63.00

P < 0.001²

Table 1: Analysis of Age-Related Epidemiological Trends in Adult ADHD Diagnoses From 2000-2023 in NEPA. The mean age across both sexes were 30 years old and the median age across both sexes was 28 years old. The average age and median age of women diagnosed were higher than that of their male counterpart. Across both sexes, individuals in the 18-30 age group were diagnosed more than any other group and the 50+ age group was diagnosed the least of all other groups.

Patient Ethnicity, n (%)	Total (N= 5380)	Female (N= 2836)	Male (N=2544)
Hispanic or Latino	148 (2.8%)	76 (2.7%)	72 (2.8%)
Not Hispanic or Latino	5036 (93.6%)	2669 (94.1%)	2367 (93.0%)
Unknown	196 (3.6%)	91 (3.2%)	105 (4.1%)

P = 0.1845

Race, n (%)	Total (N= 5380)	Female (N= 2836)	Male (N=2544)
Asian	41 (0.8%)	26 (0.9%)	15 (0.6%)
Black or African-American	113 (2.1%)	57 (2.0%)	56 (2.2%)
White	5163 (96.0%)	2720 (95.9%)	2443 (96.0%)
Other	63 (1.2%)	33 (1.2%)	30 (1.2%)

P = 0.5474

Table 2: Analysis of Race and Ethnicity Related Epidemiological Trends in Adult ADHD Diagnoses From 2000-2023 in NEPA. Patients that were not Hispanic or Latino were found to be diagnosed with adult ADHD at higher rates than those who were across both sexes. For both sexes, white patients were more likely to be diagnosed and individuals who were Asian were the least likely to be diagnosed with adult ADHD. White female patients were the highest diagnosed of any other group of patients.

Discussion:

- In this retrospective cohort study, 2836 were female [52.7%] and 2544 were male [47.3%]. Female patients were found to consistently more likely to be diagnosed compared to their male counterparts across the 23 years.
- Among the 5,380 participants included in this study, 5163 [96.0%] were white, 113 were Black or African-American [2.1%], 41 were Asian [0.8%], 18 were American Indian or Alaska Native [0.3%], 8 were Native Hawaiian or other Pacific Islander [0.1%], and 37 were other or unknown [1.0%].
- The prevalence of adult ADHD was highest in individuals who were not Hispanic or Latino [n=5036, 93.6%].
- The mean and median age of patients diagnosed with adult ADHD respectively were 30 and 28 years old.
- There were 3087 participants in the 18-30 years old age group [57.4%], 1269 participants in the 31-40 years old age group [23.6%], 707 participants in the 41-50 years old age group [13.1%], and 317 in the 50+ years age group [5.9%].
- The data across the 23 years indicates that participants from the ages of 18-30 years old consistently had the highest prevalence while participants 50 years and above had a consistently low diagnosis prevalence across both sexes.
- The results from this study indicate that individuals who are female, white, or are within the 18-30 years old age range are more likely to be diagnosed with adult ADHD over the past 23 years in the Northeastern Pennsylvania region.

Conclusion:

- This study's findings suggest that there are significant differences in the prevalence of adult ADHD diagnoses across different groups in NEPA from 2000 to 2023, which aligns with the findings of other studies that suggest certain populations are diagnosed with adult ADHD at higher rates.
- Although there were certain years in which there have been higher or lower numbers of adult ADHD diagnosis, there appears to be in general an increase in ADHD diagnoses from the years 2000 and 2023.
- Outside of simply diagnostic changes, studies have provided other explanations for the rise in ADHD, including increased awareness and familiarity of physicians and the public with the diagnosis, geographic location and cultural differences, as well as other public health related factors such as improved access to care. (Abdelnour et al 2022)
- Further studies are needed to better understand why certain populations are disproportionately diagnosed with adult ADHD.

Works Cited:

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