

The Correlation Between Adolescent Mental Health Therapy Access and Zip Code

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Abstract

The incidence of mental illness in 12-18-year-olds has increased, especially since the COVID pandemic. This increase requires additional mental health services, but these children may have difficulty accessing those services. Disparities may occur due to socioeconomic status. It is unclear if mental health services are equivalent throughout the Knoxville, TN area. The purpose of this study is to determine if the number of mental health services varies among zip codes.

A non-experimental correlational study was conducted to determine the correlation of mental health services by zip code. The sample was the mental health services available in the Knoxville area. Using census information and school self reports, the number of 12-18-year-olds per zip code was determined. The number of licensed therapists, psychiatrists, and psychologists available to treat adolescents in each zip code was identified. This study will compare the number of adolescents per zip code, the level of accessibility of mental health services, and the median household income. All three of the data points I looked at: the number of students to providers who saw adolescents ratio, the average wait times for each zip code and the payment options accepted showed that certain zip codes provided a lower access of care to adolescents who are in need of mental health therapy. This means that where a child lives with their family is important in indicating the access to care they have in that area for mental health therapy services. Future recommendations for this data include using socioeconomic status of zip codes and comparing it to the number of providers to see if there is a correlation. This study can be replicated on larger scales comparing different counties by using an average.

Key Words: adolescents, therapy, access & zip code

The Correlation Between Adolescent Mental Health Therapy Access and Zip Code

Poor mental health is a crisis in the United States affecting more and more people every day (McPhillips, 2022). According to Kaw Valley Center Health Systems, a non-profit that leads in the mental health services for children and families, a mental health crisis is when an individual's state of mind, their mental health, leaves them unable to care for themselves, function in a healthy manner and can lead to hurting themselves or others (Riley, 2023). The United States is in a mental health crisis which means that there are increased rates of suicide and higher needs for services (McPhillips, 2022). According to a poll conducted by CNN, 90 % of US adults say that the US is experiencing a rising/worsening mental health crisis (McPhillips, 2022).

Children are disproportionately affected by the mental health crisis because they not only rely on others for getting treatment but rely on others to acknowledge that something is wrong and believe them enough to get help (Centers for Disease Control and Prevention [CDC], 2023a). Children, especially those in middle and high school, had a rise in mental health illness and suicidality by 57% starting in 2007, after being stable from 2000 to 2007 until 2022. (Walsh, 2022). Social media has been found to have a significant link to the decline in mental health.

The Center for Disease Control and Prevention (2023b), reported ADHD, anxiety, depression, and behavioral problems as the most commonly diagnosed mental disorders in children. The CDC also reported that approximately 1 in 6 children aged 2-8 have a mental, developmental or behavioral disorder, but that among children living below the federal poverty line this number is closer to 1 in 5 children. Among those aged 12-17, 37% had persistent feelings of sadness/ hopelessness and almost 20% had seriously considered attempting suicide. It is important to start them in therapy and get treatment especially when these children are being

diagnosed at such a young age. Early diagnosis and access to services for help not only makes a difference in the lives of those who have mental disorders but can save those lives too by decreasing rates of suicide (Research and Development, 2018).

The Center for Disease Control and Prevention [CDC] reports that psychological therapy is an integral part of improving mental health in children (2023d). The CDC is working on getting more information about the access to behavioral health services there are for children and their families across the US to aid in giving families more resources available. The National Association of School Psychologists (National Association of School Psychologists, 2021) states that mentally healthy children are more successful in not only school but their life. The Substance Abuse and Mental Health Services Administration in 2020 reported that of the 3.8 million adolescents who reported having a major depressive episode, 60% did not receive any treatment. This number only included those who had a reported major depressive episode and is likely to be higher as many most likely did not report having an episode especially if they are not receiving treatment.

There have always been societal trends, for instance body type and what is perceived as the “beauty norm” leading to mental health issues like eating disorders beginning around the age of twelve (Yirka, 2019). However, now these trends are rising further due to most adolescents having phones and using social media.

Review of Literature

The National Council for Mental Wellbeing [NCMW] (NCMW, 2022) conducts an annual survey to assesses Americans’ access and attitudes towards mental health services. Their data was collected using an online survey with 5,000 American respondents and a confidence level of 95% in their reported results. The results indicated that the lack of access results in

mental health not being addressed. Additionally, their study concluded that 76% of Americans see mental health as important as physical health and 56% of Americans were seeking mental health services at the time of the study; the NCMW stated this demand for services was at an all-time high and that while there is a high demand for services, individuals are struggling to find the help they need. This lack of access is disproportionately affecting individuals who are younger and come from families with lower socioeconomic status/ income. There is a gap in the literature due to these findings addressing those who are 'younger' rather than specifically stating adolescents. Additional findings included that 42% of the population saw cost and poor insurance coverage as the top barriers to accessing care and 25% of the population had to choose between getting treatment or paying for daily necessities. They found that compared to middle/upper class income households, low income individuals are less likely to know where to go, and may explain why 53% of Americans that have not sought mental health treatments are from low-income households. Lastly, they found that those who live in rural areas are less likely to proactively seek mental health services due to accessibility and stigma around requiring mental health care.

The purpose of this study is to determine the accessibility of treatment for mental health for adolescents in Knox County, Tennessee and determine if the available services are equally distributed across the county. It was anticipated that there would be evidence of disparities based on income and race. Additionally, this study determines the correlation between accessibility levels to mental health counseling in proportion to the amount of people in a zip code.

Methods

A non-experimental correlational study was conducted to determine if there is a relationship between availability of mental health service for those in a public middle and high

school aged 12-18 and the zipcode lived in. Accessibility is defined as the ratio of number of children in a zip code area to licensed mental health providers (therapists, psychologists & psychiatrists.)

Using census information and school self reports of student numbers, the number of 12-18 year olds per zip code were determined. The number of licensed mental health providers who treat adolescents in each zip code were also determined as well as an additional accessibility rating based on the number of providers who see adolescents, the average wait time for new adolescent patients and the types of payments accepted.

To determine the accessibility of therapy, a list was made of all the offices in Knox County by their zip codes. After the list was obtained each office was called and asked to answer a series of questions including: if they have a provider who sees adolescents, the number of patients who see adolescents, the average wait time for new adolescent patients and the types of payments they accept. Each question will have a range of scores that can be seen in *Appendix A* and *Appendix B* and each office received an overall accessibility score as well as a score for area of accessibility. The scores were based on answers provided by the offices; a low score is an indicator of poor accessibility.

The data was collected by the researcher, who did not need specific training, that followed a prompt, *Appendix A*, for each phone call. The process was standardized by using a set prompt for the phone call and a range of scores for each section which was set prior to starting the calls, both of which can be seen in *Appendix A* and *Appendix B* below. The measures used to collect data was an online tracking spreadsheet and checklist followed, as seen in the *Appendixes* during phone interviews.

To determine the number of those aged 12 to 18 per zip code: the U.S. Census Bureau, the Knoxville Geographical Information System (KGIS) maps, and Homes.com were used. To find the therapist offices: Google Maps and Psychology Today were searched. These two sites were used due to the accessibility of them for those who would be searching for a mental health therapy office, either for themselves or for their children.

Analysis

The ratio of adolescents per zip code and the level of accessibility of mental health services in that area were calculated as the primary data set. This data shows if there are health disparities and how the disparities are coming up; for instance,

- are there the same number of providers for the same number of adolescents (one provider per one hundred adolescents or so on) in each zip code.
- is there a zip code with shorter wait times.
- if one zip code has more financially accessible providers.

Aggregated scores compare the accessibility of mental health therapy for adolescents per zip code over a multitude of statistical analysis. The level of accessibility was determined using the questionnaire from each therapy office, or the lack of a therapist in the zip code against the number of students aged 12-18 in said zip code.

Findings & Results

In total, there were twenty seven zip codes in Knox County with public middle and high schools. Students ranged from 447 to 3,573 in a zip code. Of those twenty seven, five had students but no therapy offices at all and one zip code had two offices but neither of them saw students. In the zip codes that had therapy offices, the range in ratio of students to therapists who saw adolescents was at most 2,320 students to no therapists and at the lowest ratio of 49 students

for one therapist who saw an adolescent. The number of clinics per zip code ranged from 0 to 8, showing those who lived in a zip code with 8 offices who have a provider are going to have a higher level of access to care than those in the zip code with 0 providers.

As mentioned, there were five zip codes in Knox County that did have students but did not have any type of mental health therapy office available for those in its zip code. These zip codes were not accounted for in the averages due to inappropriately altering the data set, but their lack of providers is a disadvantage for the adolescents within that zip code. They have a decrease in access due to having to travel for a provider, incurring travel fees (gas/time spent) and having longer waiting times of the providers surrounding them as those providers have to serve a larger number of clients. The size of the zip code in square miles additionally makes a difference as the smallest zip code was 0.4 and the largest zip code was 84.8 square miles. This length makes a difference when clients are able to walk to their office versus needing to drive 50 miles to get there.

Overall there were 86 therapist offices within the Knoxville County zip codes with therapy offices. Of those 86 offices, 56 had a provider who saw adolescents. The median wait time for a provider who saw adolescents in their office was 22- 28 days for an appointment. 57% of those who saw children were in the range of 22 - 56 days to wait for an appointment. The remaining 43% was broken down as 32% in the 15 - 21 days and 11% ranging from 8-14 days. This means that overall, most children are waiting between three and four weeks before they are able to see a mental health therapist. There are limitations to these numbers as this does not include any office who stated they were looking for additional providers to serve adolescents, does not include any providers who had closed books and were no longer taking on new patients, and lastly a limitation was that for some offices this was a rough estimate between multiple

providers who saw adolescents rather than getting the specific wait time for each provider who sees adolescents. The data collected show that the wait times for providers between zip codes ranges between 8 and 56 days. This further proves that adolescents may be disadvantaged and have a lower level of access, in this case the time until they are able to get in, based on the zip code they live in.

Regarding the financial accessibility of mental health providers, most providers accepted two types of payment, out of pocket (OOP) and reimbursement insurance plan - where the patient would still pay the up front and out of pocket payment with the hopes of being refunded by their insurance plan with stipulations such as having an official diagnosis, which can only be done by a psychiatrist. The majority of the payments accepted were either in network insurance plans and out of pocket payments - while not everyone (most) accepted any form of insurance aided coverage, all offices accepted out of pocket pay. While each provider differs even in the same office, the range in appointment costs was \$65/45 min to \$195/45 minutes. While this may be easy for some families, this is difficult for most - especially if they are doing more than one session a week. Therefore, financial accessibility played an additional role in hindering the ability for some adolescents to have the access to healthcare based on their zip code and financial status.

Discussions/ Recommendations

Additional analysis could be done with finding the median income of each zip code, not mean as it would be skewed disproportionately, and comparing that to the number of providers. One limitation is that this study only looked at the public schools and therefore does not account for private schools, and could not compare the number of students overall - that could be found with a more intricate data set. Once finding the median income it could be compared to the

number of providers to see if more affluent families/ areas are correlated or rather simply due to a more popular or 'busy' area of Knoxville. After looking at the individual socioeconomic factors in comparison, next could include combining the zip codes into three groups: low, middle and high income using predetermined income rankings from the U.S Government and then aggregating the data from each group to determine if there is an overall disparity at a specific income level or simply determining the access to care at each income level.

Another potential furthering of this research would be looking at the difference in licensed mental health providers who can versus cannot prescribe medications. This study grouped these groups together under one 'licensed provider' which would in turn focus on mainly cognitive behavioral therapy (CBT), talk therapy. It would be interesting to see how the data would change and the accessibility would either increase, decrease or stay unchanged if only those who can prescribe medication were looked at. Medication administration and the ability to prescribe medication is a major part of mental health therapy as many need both medication and CBT rather than just one.

Lastly, this study could be done on larger scales or replicated in other areas of Tennessee, or the world. Mental health does not just affect Knox County, everyone is affected in some way simply because everyone has emotions and ebbs and flows. It would be interesting to compare the data in lower income areas, like Knox County, to more affluent areas like San Francisco County, California or even more local ones such as Davidson County, TN.

Conclusions

Poor mental health is a crisis in the United States exacerbated by a lack of access to care. Adolescents are disproportionately affected by this crisis due to a multitude of factors including relying on others to receive care, not having a provider near them, long waiting times to get in

with a provider and the lack of payment options. This study focused on the relationship between adolescent access to mental health therapy in comparison to zip codes. Each office was given an accessibility rating based on if they had a provider who saw adolescents, how many of their providers saw adolescents, the average wait time for providers who see adolescents and the types of payment accepted. Then each zip code was given an accessibility rating based on the offices residing in it and their scores. It was found that there is a correlation between the zip code a child lives in and the accessibility level for mental health therapies. This means there are adolescents not able to access care simply because of where they live: not affordable care, wait times are extended, there is only one provider in the whole zip code or even there is not a single provider in their county. The hope is with this data there will be additional studies to find other accessibility factors and their correlation with zip code in addition to finding a solution for equal access to mental health care for adolescents no matter where they live.

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Appendix A

Hello! I am a senior nursing student calling from the College of Nursing at UTK to ask a couple of questions related to an ongoing study. We are looking at the correlation between mental health therapy for adolescents ages 12-18 and their access based on zip code in Knox County. Would you mind answering four questions related to your office?

YES: *Great, thank you!*

Our first question is about if you see children. Does at least one provider in your office provide care for those aged 12-18?

- If yes, continue with questions. If No, stop here and give a 0 for each question.

How many providers does your office have that see adolescents?

- Put the exact number of providers.

What is the average wait time for a new patient before they can get in with a provider for these providers that see adolescents?

- Give a score based on page 2.

Lastly, what types of payments does your office accept?

- Give a score based on page 2.

NO: Okay. Thank you for your time.

*If the answer is NO, their score will be 0 for all four sections unless the answers can be found online to any specific part.

Appendix B

Question 1: Does someone see those under eighteen?

Yes: 1

No: 0

Question 2: Number of providers that see those eighteen and under?

** Input the stated number**

Question 3: Average wait time for a new appointment?

0-7 days: 6

8-14 days: 5

15-21 days: 4

22-28 days: 3

28- 42 days: 2

43-56 days: 1

56+ days: 0

Question 4: Payments accepted?

Accept all insurances + out of pocket pay (OOPP): 3

Accept private insurances only + OOPP: 2

Accept only OOPP: 1