

A Review of Adolescents Depression in California

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ABSTRACT

The overall purpose of this study was to determine whether there was a relationship between depression and the increased suicide rates among adolescents in California Using the National Ambulatory Care Survey (NAMCS), a Chi-square test was conducted to analyze mental health counseling, depression screening, and gender. The study results suggested that the relationship between mental health counseling and gender was significant; however, the relationship between depression based on gender and depression screening had no significance differences in the study. Between female and male adolescents, males are more likely to seek mental health counseling compared to females. Thus, females have a higher prevalence of depression due to not taking the initiative of seeking mental health preventative measures. Based on the results of the study, mental health counseling can have great significance in decreasing depression in adolescents.

KEYWORDS

Depression; Mental health; Chi-square

1. INTRODUCTION

Approximately 1 student in every classroom currently has depression, and their fellow family and schoolmates may not even know it. Age has no direct correlation amongst adolescents with depressive symptoms; instead, self-blame and acceptance have a minor to a significant effect on depressive symptoms in adolescents [1]. The issue with self-blame and acceptance is that many factors can cause these depressive symptoms within an adolescent; which can be hard to determine. For adolescents, several stressors can be put on the body which include: hormone imbalance, inherited traits, early childhood trauma, learned patterns of negative thinking and brain chemistry. Once adolescents deal with these

stressors daily, this can lead to depression. For adolescents, some primary stressors that contribute to depression include: doing well in school, doing right by their parents, and influences from friends, and family members.

The social relationship between parents, especially mothers, and their child is highly important for the mental development of a child. In the face of negative comments, adolescents' brains are stimulated in a way that can lead to depression. The bolder the responses are, the more sensitive an adolescent can be to social value feedback and depression. After constantly experiencing

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negative comments by one's parents throughout one's childhood, it will be harder for adolescents and young adults to process the positive aspects of interpersonal relationships as personally relevant or salient to one's self-identity [2].

Emotional maternal hostility increases the chances of adolescents feeling depressed, and is mostly found in young male teens as opposed to young female teens. It was concluded that adolescents who deal with maternal stressors are more likely to select psychologically distressed friends [3]. Oftentimes, the relationship between mothers and adolescents may become hostile; however, what parents don't realize is that this hostility can have long term effects on a child's mentality which can prevail during adulthood. If a relationship between mother and child is hostile rather than supportive, it can lead to problematic outcomes in the child's teen years [4].

According to Levine (2017) [5], young women are more likely to suffer from depression, what is important is the stressors that lead to women being more depressed than men. Girls are more likely to suffer from depression because of pubertal changes, self-esteem, and interpersonal stress that young girls put on themselves. Therefore, the common idea is that, due to social expectations and hormonal changes, women may be more prone to depression than men. If one has never experienced depression, whether it be a personal experience or not, diagnosing the symptoms may be confusing. As adolescents develop and deal with changes in themselves, these symptoms can sometimes be masked or looked over by individuals around them. There are three core symptoms to be aware of regarding depression; two of these symptoms must be present to raise concern for the adolescent. Such symptoms include: losing interest in activities, continuing depressed mood throughout several days, and increasing fatigue [6]. If a child appears to have any 2 of these symptoms, they may

be susceptible to depression. These symptoms are not as uncommon as one may think. 1 in 20 adolescents are currently battling depression [7].

It is hard to argue that depression has no relevance to suicide and suicide attempts in adolescents. Sometime, the stress of living to parental expectations and still trying to figure out who one is can cause a great deal of distress and confusion in adolescents. Also, suicide and depression in friends and family can create a huge influence on other adolescents, creating a chain reaction. 21% of adolescents reported being exposed to suicide and/or depression by either a friend or family member. This exposure and depression could predict the risk of future suicide attempts in the adolescent youth community [8]. Suicide rates in adolescent boys have increased by 31%, and have doubled for adolescent girls; this signifies that gender may have an impact on these rates of suicide caused by depressive symptoms [9]. A rise in suicide rates in adolescents spiked between 2013 and 2017, with a 7% annual average of adolescent suicides, which was once 3% annually before 2013 [10]. This is not a coincidence, there must be shared factors among adolescents to have such an increase in suicide. Some of the main factors that are contributing stressors to depression leading up to suicide include: social media and also feeling like a disgrace to their parents [11].

There is a huge concern for diagnosing and treating adolescent depression due to its lasting consequences during the child's adulthood. Approximately 5.6 percent of adolescents aged 13 to 18 and 2.8 percent of children aged younger than 13 have depression [12]. With a lack of treatment, depression will not only recur in adulthood but also increases the chances of suicide later on in the adolescents' life. Also, with depression, psychological illnesses start to appear later in the child's life; such as bipolar disorder and dysthymic disorder. Many factors can cause childhood depression, such as biological psychological, and environmental. Children need to be

screened and diagnosed at an early age to help children obtain the help they need to cope with their depression and trauma that they've gained during their childhood years. Treatment for children and adolescents lasts approximately 6 months, depending on how the severity of the child's trauma. Children undergo psychotherapy, pharmacotherapy, or a combination of the two treatments. Pharmacotherapy is used for those diagnosed with moderate to severe depression while cognitive behavior therapy and interpersonal therapy are for those with mild depression [12].

2. STATE OF PROBLEM

There are many components that contribute to depression in adolescents, but in order to know whether or not your child is suffering from depression, you would first need to understand what depression is. Depression is the state of feeling sad or losing interest in activities you once enjoyed [13]. Depression is also known to be caused by different stressors in an adolescent's life, like problems at school or home, discomfort in certain activities, or anxiety in other areas of an adolescent's life [14]. To be more specific, neighborhood poverty, violence, learning disabilities, hormonal changes, and physical illnesses all play a huge role in the contribution to depression in adolescents [15].

Although these stressors are linked to depression, they can also be warning signs for those who are dealing with someone who may have depression. Some of these warning signs include lack of energy, avoiding friends and family, restlessness, difficulty being organized, and changes in appetite or weight [15]. Although the same signs of depression, are also closely linked to the signs of a normal growing teenager, it is hard for those around adolescents showing these signs to be diagnosed with depression. The best thing to do when you see these warning signs in adolescents is to contact or find a trusted adult to point out these signs and get the adolescent talking about their issues [16].

3. SIGNIFICANCE OF THE STUDY

Determining correlation between depression and increased suicide rates among female and male adolescents in California is very important due to so many social factors. There is no denying that depression, just like many mental illnesses, are not always noticeable. But, that does not mean that adolescents are not dealing with depression symptoms daily. Every single one of these stressors put on adolescents can lead to depressive symptoms. Once adolescents are faced with so much depression, it can lead to drug and alcohol abuse, certain health problems, interfering with the way you eat or sleep, and so much more [17].

Therefore, this study was designed to evaluate the relationship between suicide rates and depressed adolescents. Just like any other health illness, it is important to understand the signs of depression so that way other students, parents, family, faculty members, and health care professionals can recognize these signs and give help to those who need it before it is too late. Children and adults need to understand the severity of depression and how it affects their children and/or peers. As depressive symptoms increase, adolescents are faced with difficulty learning, not having an urge to learn new activities, losing interest in activities that used to be exciting to them, and losing the urge to talk to others [14].

There are many studies conducted on depression in adolescents. However, these prior studies have mainly focused on how the brain works in both depressed and non-depressed female and male adolescents when faced with different stressors known to cause depression. This study is set apart from the rest because we are taking adolescents who have depression and linking that to the increasing rates of adolescent suicide.

4. METHODOLOGIES

Design of the study

The main objective of this study was to analyze the correlations between adolescents with depression and increased suicide rates in California. This study also investigated whether there was a correlation between gender and depression. With data taken from 2017 NAMCS, the researchers used participants between the ages of 10 to 19 for this study's sample size. From there, the researchers used Chi-square testing, to determine the correlation between the studies' independent variables with its dependent variables. NAMCS data was also analyzed under the Statistical Package for Social Sciences (SPSS) to observe the frequency of patients participating in depression screening and mental health counseling. Along with such prevention measures, the descriptive statistics analyzed gender and adolescents already diagnosed with depression. Using these tools, the researchers analyzed the correlation between each variable and determined if there was a relationship between the independent and dependent variables of this study.

Overview of National Ambulatory Medical Care Survey (NAMCS)

The National Ambulatory Medical Care Survey (NAMCS) was conducted in 1973 as a national health care survey for the National Center for Health Statistics (NCHS). The survey's objective was to obtain reliable information on the foundation and use of ambulatory medical care services in America. These surveys are conducted in non-federal owned physician offices that focus directly on patient care; but, in 2006, community health centers (CHC) were added into the survey to include advanced practice providers such as nurse practitioners, physician assistants, etc. NAMCS works alongside the National Hospital Ambulatory Care Survey (NHAMCS), a data collection tool that looks at the utilization and provision of ambulatory care services in an emergency, outpatient, and ambulatory surgery

departments. Both tools are national health care services that work together alongside with Centers for Medicare and Medicaid Services (CMS). Not only do these national health care surveys make data on ambulatory care more accurate, but it also improves professional education in health care, medical practice management, formulation of healthcare policies, and evaluation of healthcare quality. NAMCS is currently one of the biggest national health care surveys in the United States, working among 34 of the most populous states in America for data collection [18].

Data collection

Annually, NAMCS selects a random group of licensed non-federal physicians and community health centers (CHC) related to the American Medical Association and the American Osteopathic Association to participate in the surveys. These organizations keep a list of these non-federal physicians up to date to have the most accurate sample selection for this survey. The CHC selects health centers related to the Health Resource and Services Administration (HRSA), which also keeps an updated list of health centers available for the survey to accurately sample from. Those chosen will be the representative of the region, state, and medical specialty for thousands of physicians. When chosen, the physician is given a letter from the Director of the National Center for Health Statistics (NCHS) and will then be contacted by the Census Bureau. This survey will only be seen by workers under NCHS and agents working with the data information. Once approved by the Bureau, physicians are given a 1-week reporting period to collect data. The US Census then takes the recorded data to be computerized in a Patient Record form. During this reporting period, the physician must report patient physical characteristics and reason for visit; while doing so, physicians must also collect data on their work practices. Traditionally, NAMCS uses two data files: patient visits data and drug mention data. In 2012,

NAMCS used these two data files and a separate file for CHCs and advanced practice providers [19].

Independent variable

The independent variables in this study is depression and gender in adolescents.

Dependent variable

The dependent variable in this study is depression and suicide.

Covariables

The researchers in this study also included additional dependent variables, such as substance abuse.

Hypothesis 1

Female adolescents show more signs of depression compared to male adolescents.

Research question

Is there a correlation between adolescent depression and increased suicide rates?

Statistical analysis

To test the hypothesis, the researcher chose the questions from the NAMCS database to test the relationship between the dependent and independent variables. Survey responses with the answers “refused” and “inapplicable” were excluded from the statistical analysis. Also, because this study only represents adolescents, respondents whose ages were not in between the age range of 10 years to 19 years old were also excluded from the study. After narrowing down the total survey population to the target population, the sample size for this study’s analysis was reduced to 878 total adolescents who participated in this project.

In order to determine whether there is an association between depression and suicide rates of adolescents, a Chi-square test was applied. This test also determines if there is a relationship between females being more

depressed opposed to males and the increased suicide rates (Table 1).

| Hypothesis | Dependent Variable | Independent Variable | Methods |
|--|--------------------|----------------------|------------|
| Correlation between adolescent depression and increased suicide rates in adolescents | Suicide | Depression | Chi-Square |
| Female adolescents are more likely to be affected by depression than male adolescents. | Depression | Gender | Chi-square |

Table 1: Summary if statistical analysis.

5. RESULTS

Descriptive statistics

Data from the National Ambulatory Medical Care Survey (NAMCS) survey was analyzed using the Statistical Package for Social Sciences (SPSS) to test our hypothesis. A total number of 13,165 people participated in this survey. However, for the purpose of this study, we only focused on individuals between the ages of 10 and 19, which totaled 878 participants for this study. Because the scope of this study focused on the factors that play a role in depression, certain survey questions were excluded from the study. Thus, participants who answered “inapplicable”, “don’t know”, “blank”, “unknown” and questionable injury status” were excluded from the survey population.

Therefore, Chi-square and frequency tables were both used to test the research hypothesis. A frequency table is used to show how much of each observation falls into each category of each given question. Table 2 represents the number of patients who have been screened for depression. According to NAMCS, 95.7% did not participate in the depression screening and 4.3% did participate.

| Categories | Frequency | Percent |
|------------|-----------|---------|
| No | 840 | 95.7 |
| Yes | 38 | 4.3 |
| Total | 878 | 100.0 |

Table 2: Respondents who participated in a depression screening.

Table 3 presents data on respondents who have either intentionally or unintentionally caused injury/trauma or overdose/poisoning to themselves. According to NAMCS, 87.8% left this question blank, 0.1%

intentionally caused harm to themselves, and 7.0% unintentionally caused harm to themselves.

| Categories | Frequency | Percent |
|---------------|-----------|---------|
| Blank | 815 | 87.8 |
| Intentional | 1 | 0.1 |
| Unintentional | 62 | 7.0 |
| Total | 878 | 100.0 |

Table 3: Presents data on injury/trauma or overdose/poisoning intention or unintentional.

Table 4 presents how many females and males participated in the study. Out of 878 adolescent participants, 434 (49.4%) were females and 444 (50.6%) were male.

| Categories | Frequency | Percent |
|------------|-----------|---------|
| Female | 434 | 49.4 |
| Male | 444 | 50.6 |
| Total | 878 | 100.0 |

Table 4: Gender of respondents.

In order to explore whether adolescents with depression are seeking mental health counseling by healthcare professionals. Table 5 represents participants who now have depression. According to NAMCS, 93.6% of adolescents reported not having depression, leaving 6.4% of adolescents who did report having depression. Table 6 represents participants who have participated in mental health counseling. Of the 878 adolescent participants, 94.5% are not participating in mental health counseling, leaving 5.5% of adolescent participants who are participating in mental health counseling.

| Categories | Frequency | Percent |
|------------|-----------|---------|
| No | 822 | 93.6 |
| Yes | 56 | 6.4 |
| Total | 878 | 100.0 |

Table 5: Does patient have depression.

| Categories | Frequency | Percent |
|------------|-----------|---------|
| No | 830 | 94.5 |
| Yes | 48 | 5.5 |
| Total | 878 | 100.0 |

Table 6: Mental health counseling.

Hypothesis testing

In order to test the correlation between depression and gender, the researchers used chi-square and p-value.

Also, by using frequency tables, researchers were able to show the association between depression and the increased suicide rates.

The first hypothesis predicted that female adolescents were more prone to suffering from depression compared to male adolescents. To test this hypothesis, the researcher used a chi-square to determine whether more females suffered from depression than males. The Chi-square value shows 3.047 and $p = 0.081$, which is not statistically significant, and it is hard to indicate that there is enough evidence to represent the correlation. 34 out of 434 female adolescents and 22 out of 444 male adolescents reported having or feeling like they have depression. Also, to clarify the relationship between depression and gender, the researchers tested the association between adolescents who participated in depression screening and gender. The chi-square value equaled 1.138 and $p = 0.286$, which is not statistically significant. 38 out of 878 adolescents which correlates to 4.3% of adolescents that participated in depression screenings. When comparing this to gender, 5.1% of female adolescents and 3.6% of male adolescents participated in depression screening, which is not showing a big difference. From these results, having depression and receiving depression screening has nothing to do with an adolescent’s gender.

However, by focusing on adolescents who received mental health counseling with gender, the chi-square value is 5.263 and $p = 0.022$, which is statistically significant. 3.7% of female adolescents and 7.2% of male adolescents indicated that they received mental health counseling. There is enough evidence to represent an important relationship between them. The statistical results from these two surveys identify that male adolescents are more likely to receive mental health counseling than female adolescents. Therefore, the researchers state that male adolescents tend to open up

about their mental problems compared to female adolescents.

From Table 3, this data shows 0.1% of adolescents intentionally caused harm to themselves, and 7.0% of adolescents unintentionally caused harm to themselves while the rest of adolescents (87.8%) left blank. This presents that there is no strong evidence indicating that adolescents have intentionally caused any self-harm. By researching NAMCS, there is no evidence to state the association between depression and suicide rate.

6. DISCUSSION, CONCLUSION AND RECOMMENDATIONS

The study used data from the National Ambulatory Medical Care Survey (NAMCS) to investigate the correlation between depressed and suicide rates among male and female adolescents. Since the researchers focused only on adolescents, an age range was set for participants between the ages of 10 and 19. Any children below or above that range were excluded from the study. A vast majority of articles focused on the relationships' children have with their family and friends, and how these relationships can affect a child's mentality later on in life. If the child has negative relationships, this will eventually lead the child to develop depression during their teenage and adult years. The researchers also analyzed if the patients have been diagnosed with depression or have been screened for depression in the past. This was used to determine how many people in the sample size currently have depression. Lastly, since substance abuse and intended injury are symptoms of depression, the researchers included these factors to determine if suicide rates are highly prevalent among children.

The study showed results that gender does not have any correlation with depression in adolescents. However, female adolescents are less likely to receive mental health counseling than male adolescents. This means

female adolescents tend not to open up and share their feelings or their mental health concerns compared to males. Those adolescents who choose not to seek mental help should find people such as family, friends, teachers, or school counselors to open their minds to. People around adolescents should be supportive about their feelings and concerns with mental health problems [20]. Once depressive symptoms appear, there are some signs relating to their attitude or behavior to look out for. Signs include emotional changes, and insomnia [14]. When these signs continue, it would be a perfect time to consult with a mental health professional to shed some light on your concerns and possibly even start a treatment plan. Another way to reduce the number of depressed adolescents is to incorporate some type of program on school grounds that deals directly with mental health. It would be different than for someone just going to see a counselor. This would be an expert who is able to see if someone is depressed even if the person they are examining is saying they are fine. A treatment plan will be created based on the feelings and thoughts these young adults and children are feeling. With this we hope to see a decrease in the number of depressed adolescents and an increase in their education scores.

7. LIMITATIONS OF THE STUDY

In this research study, the researchers had trouble obtaining information for their hypothesis. While CHIS did have dependent variables that are related to the topic of depression, it did not have a lot of topics related to depression itself. And while NAMCS had topics related to depression, the survey's data did not correlate with the peer reviewed papers that the researchers had found. According to NAMCS, there was an almost non-existent number of adolescents with depression and with CHIS. Most children were satisfied with themselves and their home environment. When the researchers attempted to find a correlation between adolescent depression and increased suicide rates, NAMCS does not provide any specific variable showing the suicide rate. Instead of this

topic, adolescents with intentional or unintentional injury/trauma or overdose/poisoning to themselves were presented to test the research question.

8. FUTURE DIRECTIONS

There are some future directions other researchers should take in order to successfully accomplish the research, in regards to being able to support and find appropriate secondary data. First, the researchers should understand how to handle SPSS covering the statistics that the

researchers need. By doing this, researchers are able to choose a topic based on the data and questions provided in the study. If a segment of a study is too complicated, it is difficult to look for the questionnaires in the database, eventually leading the researcher to find a new topic to conduct research on. Also, once a topic is chosen the researcher needs to make sure that the survey questionnaires contain data supporting the study to figure out the hypothesis.

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