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The Role of Self-Mutilation Behaviors Among Adolescents Who Are Depressed

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This is to certify that the doctoral study by

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Walden University
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Abstract

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By

Patricia Bentley Wilkins

MSPH, Walden University, 2009

BSN, Brenau University, 1996

Doctoral Study Submitted in Partial Fulfillment

Of the Requirements for the Degree of

Doctor of Public Health

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Abstract

Adolescents who are depressed may self-injure themselves. Common methods for non-suicidal self-injury are cutting and burning the skin of one's own body. Multiple confounding factors of age, gender, race and socio-economic status could lead one to engage in intentional or unintentional self-mutilation acts. The current body of literature on adolescent mental health demonstrates limited understanding of how racial and ethnic identity factors contributes to depression, self-injurious behavior, and suicide. This quantitative study determined if there was a relationship between depression and prevalence of adolescent self-mutilation. The social ecological theory was used to study the intersection of social determinants of depression and why depressed adolescents might perform self-mutilation behavior. Data was analyzed from the Web-Based Injury Statistics Query and Reporting System for the years 2015 through 2017. Results showed there was no difference in self-mutilation and depression, but there was a difference in racial/ethnicity and self-mutilation among depressed adolescents. It is hoped that the findings of this study will advance the practice of mental health care treatment for adolescents by providing a broader understanding of how racial and ethnic identity, depression, and self-injurious behavior may interact and influence each other. The implications for positive social change are to decrease the prevalence of adolescent depression, acts of self-mutilation, and unintentional suicide by providing adolescents with essential resources to learn new coping skills and build positive relationships.

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Dedication

I would like to dedicate this capstone to my family who have supported and
encouraged me throughout this process.

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I would like to acknowledge and thank some of the faculty at Walden University who have guided and supported me throughout my research on my capstone. I would like to acknowledge my Chair, Dr. David Anderson who has been a great mentor; all recommendations were received with appreciation, and thanks to ensure my capstone met Walden's high standards. I would like to acknowledge Dr. Srikanta Banerjee who provided encouragement and support and made learning statistics fun. I would like to acknowledge my second committee member, Dr. Cornelia White who assisted with the prospectus and proposal review. Finally, a huge acknowledgement and thanks to Dr. Zin Htway, statistical expert for the valuable assistance during my statistical analysis.

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Section 1: Foundation of the Study and Literature Review

Introduction

The topic of the study is self-mutilation behaviors among adolescents who are depressed. A reason that an individual may engage in self-mutilation behavior may be due to the establishment one's identity (Wester and Trepal, 2015). The concept of belonging and self-identity within a social or cultural context is a key component of development (Wester and Trepal, 2015). Per Gulbas et al., (2015) there is a need to research the similarities and differences among non-suicidal self-injurious behavior (NSSI) and suicidal behavior's across racial and ethnic groups to identify cultural and health beliefs that might cause one to engage in self-mutilation.

Social Change Implications

It is hoped that the findings of this study will advance the practice of mental health care treatment for adolescents by providing a broader understanding of how racial and ethnic identity, depression, self-injurious behaviors, and suicide may interact and influence each other. Understanding the complexity of these interactions may lead to interventions and treatment to prevent self-harm behaviors in adolescents. In addition, findings from this research may provide guidance in the development of educational programs for teaching groups about the problems associated with teens who suffer from depression and engage in self-mutilation within the school system. The implications for positive social change will be to decrease the prevalence of adolescent depression, acts of self-injurious behaviors, and suicide by providing teens with essential resources to learn new coping skills and build positive relationships.

Problem Statement

According to the National Institute of Mental Health (2017) there were three million adolescents aged 12-17 in 2015 who indicated having a depressed episode in the past year. Mental disorders, such as depression and anxiety are characterized by alterations in thinking, mood, and behavior that are associated with distress and/or impaired functioning (Healthy People 2020, 2017). Per the Mayo Clinic (2017), there are specific risk factors that may increase the risk of self-injury, including age, life issues, mental health issues, and substance abuse. A self-destructive cycle often develops when individuals are unable to express their feelings and will engage in self-destructive behaviors (Mental Health America, 2017). A form of expressed depression is exhibited by self-mutilation. The most common methods of self-mutilation are skin cutting (70%-90%), head banging or hitting (21%-44%) and burning (15%-35%) (Mental Health of America, 2017). Per Gonzales and Bergstrom (2013) reported that non-suicidal self-injury is increasing in adolescents.

In a study by Smokowski, Evans, Cotter, and Webber (2014) comma ethnic identity of Lumbee (American Indian) adolescents and a group of Caucasians, African American, and Latino/Hispanic adolescents revealed that self-esteem mediated the role between ethnic identity and anxiety symptoms, depressive symptoms, and externalizing behavior for all racial-ethnic groups. Further explanation of why a person performs self-mutilation will be the need to examine confounding factors that could contribute to self-injury. Gulbas et al., (2015) published that adolescents who engaged in non-suicidal self-

injurious behavior (NSSI) perceived their negative feelings as something that could be controlled through injurious acts upon their body. Crowell et al., (2012) reported that adolescents who engage in self-inflicted injury are at an increased risk for suicide attempts, completed suicide, and adult psychopathology. Emerging research identifies suicide as the third leading cause of death among youth aged 15-24 years in America (Seymour et al., 2016).

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) (4th ed.) reported that a major depressive episode is defined as "a period of two weeks or longer during which there is either depressed mood or loss of interest or pleasures and at least four other symptoms that reflect a change in functioning, such as problems with sleep, eating, energy, concentration, and self-image" (National Institute of Mental Health, 2017). Healthy people 2020 (2017) stated that it is vital to identify individuals who are at risk for mental health disorders. Depression can result in poor family and interpersonal relationships leaving a person feeling isolated or alone. In the recent *DSM-5,* recommendations for increased research on NSSI and suicidal behaviors were made, and there is a need to examine the similarities and differences among these two behaviors across racial and ethnic groups (Gulbas et al., 2015). The current body of literature on adolescent mental health demonstrates limited understanding of how racial/ethnic identity factors contributes to depression, self-injurious behavior, and suicide. Per Williams, Phillips, Chadwell, and Monsman (2017) previous studies have indicated that white/Caucasian adolescent females with mood disorders and anxiety had a higher prevalence rate of NSSI behavior (46%). However, there has been "inconsistent findings

regarding gender and race/ethnicity" (Williams et al., 2017) in newer studies requiring further research. It was reported by Gholamrezaei, Stefano, and Heath (2015) that in prior research on NSSI, most of the studies involved Caucasian participants in Western countries. Per Gholamrezaei, Stefano, and Heath (2015) the role that race/ethnicity, culture and other markers of social location intersect with one's mental status is essential to understanding the NSSI behaviors among ethnic/racial minorities. This present study addressed the identified gap in the literature and may lead to a better understanding of beliefs and values that might result in negative coping behavior among teens. There is a need for public health professionals to implement best practices to improve the quality of life for adolescents. Collaborating with community leaders will enable public health professionals to increase the knowledge level in area communities for the norms, beliefs, and social an economic system that may create the conditions for adolescent self-mutilation (Centers for Disease Control and Prevention, 2009).

Purpose of the Study

The purpose of this quantitative study was to determine if there was a relationship between self-mutilation behavior and adolescents with depression. Impacts are the negative problems of growth and development, school performance, peer/family relationship, and the fact that self-injury could lead to suicide (Bhatia and Bhatia, 2007). The social impact of the research problem is the increased numbers of adolescents engaging in self-mutilation behavior.

Possible Analytical Strategies

Odds Ratio and Chi-Square provided the statistical calculations for testing the hypothesis that there was no relationship between self-mutilation and adolescents diagnosed with depression. Compiling 2 x 2 contingency tables of studies grouped with the same dependent and independent variables provided the visual for odds ratio output. An online statistical test with a 95% confidence interval calculated the odds ratio. The Chi-Square distribution had an alpha level of significance set at (p =0.05) and degree of freedom (df = 1.0). The null hypothesis will be rejected if the Chi-Square is greater that 3.841 (the critical value of Chi-Square) (BCPS, 2010). Data was collected and a multiple regression analysis performed since variables are on a nominal scale, had to pass eight assumptions to provide valid results.

Research Question(s) and Hypotheses

1) Is there a relationship between depression and prevalence of adolescent self-mutilation?

Ho1: The null hypothesis is that there is no relationship between self-mutilation acts among depressed adolescents.

Ha1: The alternative hypothesis is that there is a significant relationship between self-mutilation acts and depressed adolescents.

2) Does adolescent depression correlate with race/ethnicity and self-mutilation acts?

Ha2: The alternative hypothesis is that there is a difference in race/ethnicity and self- mutilation acts among depressed adolescents.

Ho2: The null hypothesis is that there is no significant difference in race/ethnicity

and self-mutilation acts among depressed adolescents.

Independent variables: Depression

Independent variable: Self-mutilation acts

Confounding variables: Race/ethnicity, gender, age, and socio-economic status.

n a nominal scale but would need to pass eight assumptions to provide a valid result.

How variables are being measured

Depression, self-mutilation, gender, race/ethnicity, and socio-economic status are

nominal level variables. These categorical variables were labeled with numerical codes.

Age can be an ordinal level measurement if labeled as child, teen, young adult, but ratio

level was the best fit, since this study is specific to the age group of adolescence, age in

years was displayed.

Theoretical Foundation of the Study

Adolescence is a transitional period from childhood to adulthood, but there is an

increased vulnerability to mental disorders (Serafini et al., 2015). Youth growing up in

unstable environments can lead one to develop mental disorders, such as depression. The

social ecological theory [SET] was used to look at multiple levels of interaction among

adolescents and the correlation these levels may have on adolescents developing

depression (Cramer and Kapusta, 2017). Urie Bronfenbrenner introduced a model in the

1970's, formalized as a theory in the 1980's as the Social Ecological Theory (SET) with

revisions until his death in 2005 (Wikipedia, 2018). The social ecology theory was

introduced by Bronfenbrenner in 1979 emphasized the social, institutional, and cultural

context of an individual's development (Wikipedia, 2018). Youth grow up in a microsystem which includes family, school, peers, and community (Karan, 2014). Per Cramer and Kapusta (2017) it is vital to address the social, physical, and policy environments that can influence the behavior of an individual. Urie Bronfenbrenner's ecological framework for human development is the most recognized and utilized social ecological model as applied to human development (Wikipedia, 2018).

Depressive symptoms can have devastating results in a person's emotional development, academics, family, and social life (Carnevale, 2012). However, poor coping skills for emotional pain, intense anger and frustration can lead young people to self-injury Mayo Clinic, 2017). The theoretical framework selected for this correlation study, SET, focused on why depressed adolescents perform self-mutilation behavior. Simpson (2015) reported that the SET model identifies five levels of influence on health behavior: intrapersonal factors, intrapersonal processes, institutional factors, community factors, and public policies. Youth grow-up in a microsystem in which includes family, school, peers, and community (Karan, 2014). It is vital to understand the individual, relational, community and social levels when addressing any health condition or problem. Seeking to create an environment conductive to change will be essential to making it easier for young people to adopt healthy behavior and to decrease the prevalence of self-mutilation behavior among teens who are depressed (Office of Behavioral and Social Science Research, 2017).

The SET was utilized to study the intersection of social determinants of depression. Socio-ecological risk factors were addressed by assessing the different levels

of the SET to gain further insight into socio-ecological deprivation. Healthy People 2020 (2017) reported that a better understanding of risk factors, how they interact, and their impact is critical to improving and maintaining the mental health of Americans. The SET will enable one to better understand the factors that influence violence. The overlapping levels of SET (individual, relationship, community, and societal) considers how each level can increase one's risk of experiencing or perpetrating violence (CDC, 2018).

Delineation of any assumptions

The collected secondary data are adequate to answer the research questions. Respondents answered truthfully the questions asked during their emergency room visit as to how one received their body injury. A third assumption was that the primary researcher controlled for any potential bias.

Nature of the Study

The nature of this study was to quantitatively determine if a relationship existed between self-mutilation behavior among teens who are depressed using secondary analysis of WISQARS online dataset. This present study examined online data from the years 2016 through 2018. A correlational research was used to identify if there was a relationship among two or more variables using online statistical data (BCPS, 2010). This research seemed to determine the relationship between the independent variable (depression), and dependent variable (self-mutilation behavior). Confounding variables race and ethnicity, gender, age, and social-economic status, could contribute to an individual not developing appropriate coping skills. A multiple regression analysis was used to demonstrate the extent of the relationship of these variables with each other.

Literature Search Strategy

Library Databases and Search Engines

The search engines included the Walden University Library databases, including the Centers for Disease Control and Prevention, National Institute of Health, and CINAHL Plus with Full Text. The selected articles published are from 2015 to 2018. A total of 142 studies were received when the search terms entered in the search engines. Research greater than five years (41) would only be used for historical purposes; There were 47 studies that had more variables and could explain why a specific result was reached and not due to depression. A total of 20 studies were conducted in other countries besides the United States and were eliminated due to adolescents in other countries tended to have different home environments and certain adolescent behavior accepted in European countries. There were 10 qualitative studies outdated, and another eight identified as meta-analysis beginning in 1990 that will not be used. A total of 16 studies were identified as appropriate for this study.

Key Search Terms

Adolescent depression, Non-suicidal self-injury, Self-directed violence, Self-mutilation behavior, and Socio-economic status.

Exhaustive Literature Review

The synthesis of literature included sections for studies related to constructs of interest, studies related to research questions, and studies related to key variables.

Studies Related to Constructs of Interest

In a study by Lee and Liechty (2015), depression was found to be higher in the Latino population than other race/ethnic groups. Study results (N =2678) revealed that immigrant density predicted decreased odds of depression for male and female, but not non-immigrant Latino teens (Lee and Liechty, 2015). Latino youth also face other challenges such as language barriers, cultural conflicts with parents, and discrimination (Lee and Liechty, 2015). Internalizing behavior is a critical factor for considering suicide. There was a 22% rate of depression among Latino youth, compared to White (18%), Asian American (17%) or African American (15%) (Lee and Liechty, 2015). Latino adolescents had a higher percentage for one considering suicide at 16.7% (Lee and Liechty, 2015).

Per Gulbas et al., (2015) reported that Latino teens are at an increased risk for engaging in self-harm. In the study by Gulbas et al., (2015) (N =139), Latino girls engaged in cutting their bodies to process thoughts, feelings, and emotions. NSSI was perceived to release "overwhelming emotional states, including experiences of sadness, depression, tiredness, stress, frustration, and uselessness" (Gulbas et al., 2015). There were 77.8% of females engaged in NSSI who reported having family conflict due to the girls wanting more autonomy (Gulbas et al., 2105). Transitional stress (moving from their home country) to America, bullying, experience of violence, and educational challenges further added to the risk for teens engaging in NSSI (Gulbas et al., 2015).

Other ethnic groups were identified in a study by Wyatt et al., (2015) Asian minority youths were at a decreased risk for suicidal ideation and planning compared to

White minority teens, Asian female minority respondents had decreased suicidal ideation than White females, but Asian males revealed more suicide thoughts and attempts than Asian girls (Wyatt et al., 2015). When teens suffer from depression it can lead to multiple emotional and health problems (Wyatt et al., 2015). Per Wyatt et al., (2015) the National Institute of Health reported that "11% of youth experience a depressive disorder by 18 years of age." Other findings pertaining to one's risk for depression was that cigarette smoking and alcohol use was related to depression among Chinese, Korean, and Filipino females (Wyatt et al., 2015). Hawaiian girls had an increased risk for suicidal ideation with Asian American youth having increased prevalence of suicidal presentation (Wyatt et al., 2015).

Per Monto, McRee, and Deryck (2018) there is no one racial or ethnic group that is immune to NSSI, but questions are raised of how "the phenomenon is experienced and communicated within youth subcultures." The study by Monto et al., (2018) ($N= 32150$) for boys and ($N= 32521$) for girls revealed that teens engaging in self-directed injury reported being sad or thinking about suicide, "electronically bullied", a victim of sexual violence and drug or alcohol use.

How youth think, feel, and act is a direct result of their interpersonal interactions within and exposure to overlapping social systems (Wyatt et al., 2015). The micro, meso, and macrosystem can have a direct impact on adolescent behavior (Wyatt et al., 2015). Further study needs to be done to identify youth at risk and ensure that these individuals can have the needed resources to help learn new coping skills, and to help their families learn how the home environment can affect everyone within their family.

In a study by Wester and Trepal (2015) ($N = 1096$) ethnic identity revealed that 28.6% of Native American individuals engaged in NSSI. In the same study other groups identified as performing acts of NSSI were Hispanic/Latino (17.8%); White/Caucasian (16.3%); Multiracial/other (16.1%); Black/African American (8.4%); and Asian/Asian American (7.0%) (Wester and Trepal, 2015). The negative relationship between ethnic sense of belonging and NSSI behavior was statistically significant (Wester and Trepal, 2015). Though a sense of belonging seemed to be a factor against one engaging in NSSI acts, "depression and anxiety explained only 6% to 7% of the variance" (Wester and Trepal, 2015). More research needs to be done to address one's sense of belonging and socio-economic status within a cultural and environmental context (Wester and Trepal, 2015).

Studies Related to Research Questions

Prevalence of adolescent depression is growing in the United States. Multiple studies have addressed adolescent depression, but this study determined if there was a relationship between self-mutilation behavior and adolescents suffering from depression. In a study by Tanner, Hasking, and Martin (2015) ($N = 2356$) negative life events and poor coping mechanisms were identified as increasing teens risk for engaging in NSSI. Adding to the prevalence of NSSI behavior is increased psychological states (Tanner et al., 2015). Previous studies have shown a relationship between NSSI and "externalizing behavior such as rule-breaking and aggressive acts" (Tanner et al., 2015). However, externalizing behavior of fire setting prevalence was between 5% to 10% (Tanner et al., 2015).

Per Deutz et al., (2016) youth with both emotional and behavioral problems reveal dysregulation related to adolescent self-injury and suicidal thoughts. Subjects ($N =$ 697) received elevated scores on the "Child Behavior checklist: Anxious/Depressed, Aggressive Behavior, and Attention Problems" (Deutz et al., 2016). Due to the multiple factors that can increase one's risk for depression and possible NSSI, utilizing the Dysregulation Profile could be beneficial in the clinical or school setting to help identify youth at risk.

In a study by Seymour and Puzia (2015) ($N = 90$) adolescents engaged in NSSI had deficits in social communication skills including "impaired social problem-solving, poor verbal skills, and alexithymia" (Seymour and Puzia, 2015). Subjects with poor emotional face recognition may engage in self-directed injury to communicate (Seymour and Puzia, 2015). The study by Xavier, Gouveia, and Cunha (2016) ($N =782$) added to the risk factors for NSSI if one has depression and "daily peer pressure." The inability to give compassion to self, being seen negatively by other people, self-hatred, and external shame increases the prevalence of NSSI among adolescents.

In a study by Grandclerc et al., (2016) 70% of youth with a history of self-mutilation will attempt suicide. In America, the mean rate of NSSI in the clinical setting for adolescents is 35% (Grandclerc et al., 2016). Local public health leaders need to address self-directed behavior among young people with healthcare, school and community leaders, because up to 50% of teens do not go to hospitals for treatment of self-injury (Grandclerc et al., 2016).

Per King et al., (2015) one third of all adolescents in America seek emergency room treatment, but the rate of self-injury visits between the ages of 5-19 has "quadrupled over the past two decades" (King et al., 2015). It is imperative that public health professionals work with local, state, and federal leaders to identify young people at risk for depression and NSSI and/or suicide.

Studies related to Key Variables

Per Scott et al., (2015) adolescent females engaged in NSSI and suicide ideation [SI] tend to suffer a lifetime of suicide attempts. It is vital for public health leaders to develop prevention and intervention efforts to decrease the rates of youth NSSI (Scott et al., 2015). The prevalence of self-injury has an early age of onset among female girls aged 11 through 15 ears (Scott et al., 2015). In the study by Scott et al., (2015) 13% to 21% of teens aged 13-15 engage in self-inflicted injury. It is imperative that society address the growing issue of non-suicidal self-injury [NSSI] among the younger population, because NSSI can lead to suicide. Per Scott et al., (2015) "the prevalence of suicide ideation is higher among adolescents compared to all other age groups."

In a study by Ludtke et al., (2017) ($N = 447$, $M = 14.95$ years, $SD = 0.74$, 52% male) re-occurring NSSI behavior was association with female subjects, antisocial behavior, and decreased levels of "self-directedness." Multiple mental health issues increase the risk for developing self-directed violence (Ludtke et al., 2017). In the study by Yen et al., (2015) ($N = 119$) suicide events in boys were related to "perceived family invalidation", but "perceived peer invalidation" increased the incidence of self-mutilation acts among girls.

The study by Harmelen et al., (2016) ($N = 771$) revealed that early life stress before age 11 had a negative impact on teens, resulting in subjects developing depression by age 17. Since these life experiences can have a negative effect on youth growing up, it is essential for public health and medical leaders to develop appropriate interventions for the adolescent population (Harmelen et al., 2016). A positive home environment is key to children growing up to become healthy adults both mentally and physically. Youth who develop mental health issues that lead to self-directed violence will have health and mental problems following them into adulthood.

A study by Stockburger (2017) found that 12% to 37.2% of children in middle school engaged in NSSI, and 12% to 20% of "late adolescent" engaged in NSSI. The risk factors included depression, anxiety, isolation or perceived isolation from family, feelings of hopelessness, and poor intrapersonal communication were common reasons respondents gave for NSSI behavior (Stockburger, 2017). Regardless of the reason why an individual self-directs injury to their body this practice is something that must be addressed within the public health field at the local, state, and federal level. It is vital that all public health, health and medical providers join efforts to help the younger generation stop the self-mutilation of their body, identify youth at risk, and teach families about signs to watch for in their children who might already be engaged in self-injury and ensure they have the needed resources to help any family in need.

Definitions of Variables

Definition of Adolescent Depression

The National Institute of Mental Health [NIMH] (2017) reported, "Major depression is a common mental disorder affecting adolescents in the United States." Over 12% of the population in America aged 12 to 17 in 2015 reported having had a major depressive episode (NIMH, 2017). The *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) 4th edition described a major depressive episode is defined as "a period of two weeks or longer during which there is either depressed mood or loss of interest or pleasure, and at least four other symptoms that reflect a change in functioning, such as problems with sleep, eating, energy, concentration, and self-image" (NIMH, 2017).

Definition of Self-Mutilation Behavior

Self-mutilation behavior is defined as "intentional self-harm without the wish to die" (Gale Encyclopedia of Medicine, 2008). The more common ways of self-mutilation are "cutting one's skin with razors or knives" (Gale Encyclopedia of Medicine, 2008). A cause for concern is that 50% of people who self-mutilate also attempt suicide during their life (Gale Encyclopedia of Medicine, 2008).

Definition of Terms with Multiple Meaning

Definition of Self-Directed Violence

According to the Centers for Disease Control and Prevention [CDC] (2017), self-directed violence is "anything a person does intentionally that can cause injury to self, including death." Adolescents suffering from depression, anxiety disorder, and conduct

disorder have an increased risk of self-directed violence than ones without these disorders (CDC, 2017). The American Academy of Child and Adolescent Psychiatry (2013) also reported that self-injury is "the act of deliberately destroying body tissue, at times to change a way of feeling."

Definition of Self-Injury

The Mayo Clinic (2017) reported that the definition of self-injury is "an unhealthy way to cope with emotional pain, intense anger and frustration." Cutting or burning one's body are examples of self-injury that are common among young people inflicting self-injury Age (generally teenagers or young adults), life issues (abused sexually, physically or emotionally; unstable family environment), and mental health issues (personality or drugs) place adolescents at risk of coping in negative ways (Mayo Clinic, 2017).

Definition of Non-Suicidal Self-Injury [NSSI]

NSSI is a "deliberate intent to inflict self-punishment, but there is no suicidal intent" (Wilkinson, 2013). Per Wilkinson (2013) over 20% of adolescents deliberately self-injury themselves. Self-cutting was the most common method reported by teens for NSSI (Wilkinson, 2013).

Definition of Socio-Economic Status

Segen Medical Dictionary (2011) reported the definition of socio-economic status as "the standing of person or group in a community or society based on education, occupation and income." Socio-economic status is often used as a "benchmark to identify health inequalities" (Segen Medical Dictionary, 2011).

Assumptions

The peer-reviewed articles and selected WISQARS dataset will provide enough data for the study. The assumption that participants answered truthfully when asked in the emergency room of what happened to them or how did they receive the injury. The assumption that hospital employees who collected assessment data when a person came to the emergency room for treatment, recorded correctly the information being given to them by the patient. The assumption that the primary investigator controlled for any potential bias.

Scope and Delimitation

The scope of this study examined if there was a relationship between teens who are depressed and performing self-mutilation acts.

Internal Validity

The Institute for Work and Health (2008) reported that internal validity is the extent one can say that no other variables other than the study variables caused the result. It is unknown if the primary researcher minimized bias from potential hospital employees who collected the assessment data from adolescents who came to the emergency department for treatment. There was no indication that primary researcher had to account for any extraneous variables. Looking to the contextual validity finds the design of this study appropriate if one wants to collect secondary data. This researcher ensured that correct procedures were followed for data collection, analysis, and interpretation.

External Validity

Per Eeva-Mari and LiLi-Anne (2011) external validity is the extent the study results can be generalized to future people or settings. The selected sample came from adolescents who had went to an emergency department at one of the 66 NEISS hospitals in the U. S. Since the National Injury Surveillance System that these hospitals participated in by adding the ER visits data on injuries, no other data concerning adolescents being seen/treated in a primary care setting or health clinic was collected. There are many theories that one might consider using for this study, but the SET model seemed to be the best fit. The SET accounts for multiple issues that can influence the behavior change process (Simpson, 2015). Theories not selected was the and go forward or backwards, due to the many factors that can affect adolescent behavior might prove this theory to be unsuccessful. The Health Belief Model [HBM] would require that adolescent could perceive they are susceptible to depression or self-mutilation. Due to many adolescents, not talking about the problem or not going to see a health provider for treatment would make the HBM not suitable, but it would be appropriate for designing health promotion programs on the study issues (Simpson, 2015). Bandura's Social Cognitive Theory of Depression or Joiner's Interpersonal-Psychological Theory of Suicidal Behavior could both be used, but since this study was not specifically on either depression or suicide, SET was selected as the best theory for this study.

Limitation

Primary researchers may have had problems finding data. Though the surveillance system collected data from 66 National Electronic Injury Surveillance

System (NEISS) hospitals, data was not collected from any other hospital in the United States. However, the 66 of the 100 NEISS hospitals, "represent the nation's range of hospital settings, and include very large inner-city hospitals with trauma centers as well as large urban, suburban, rural, and children's hospitals" (CDC, 2016).

Delimitation

The delimitation of this study are the intentions to include only adolescents. The boundary of study included a sample size based on data collected from dataset. The full sample for the sample population as listed in the dataset was selected. Population traits include teens who had went to area emergency rooms and were seen for an ER visit. Literature within the last five years were used, but any greater than five years was used to provide significant history to the study problem.

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Significance, Summary and Conclusion

</div>

Self-Mutilation behavior among adolescents who are depressed is increasing in the United States. Mental Health of America (2017) reported that the most common self-injury was skin cutting (70% - 90%), head banging or hitting (21% - 44%) and burning the skin (15% - 35%). The current body of literature demonstrates a limited understanding of how racial/ethnic identity may contribute to adolescents developing depression and engaging in self-directed injury. The scope of this study examined if there was a relationship between teens who are depressed and who are engaging in self-mutilation behavior. Proceeding to Section 2 will identify the research design and data collection method.

Section 2: Research Design and Data Collection

Introduction

Section 2 focused on the research design, methodology, sampling procedures, and the data analysis plan.

Research Design and Rational

The selected research design for this study are quantitative including descriptive correlation analysis of predictor variables. This design allows the researcher to collect data via secondary analysis of archival data. Selected variables were adolescent depression, self-mutilation behaviors, and confounding variables of race/ethnicity, gender, age, and socio-economic status.

Time and Resource Constraints

Since this research is utilizing secondary data, there is no time or resource constraints of collecting initial data. However, there was no added time needed to collect the appropriate data to answer the research questions, but this writer utilized a timeframe of one month for collecting data after approval received from IRB.

Advance Knowledge in the Discipline

Using quantitative research will enable future researchers to generate and replicate the findings. Study results can be disseminated into the public health field through published material, consulting with health and medical professionals about the need to ensure future generations of young people can grow into healthy adults. Adding to this knowledge within the public health practice will enable public health professionals

to go out into area communities to teach adolescents and their families about positive coping mechanisms

Methodology

Population

The target population are adolescents living in the United States. The sample population were adolescents who were treated in 66 of the 100 NEISS hospitals who report emergency department visits to the national surveillance system about injuries. The WISQARS dataset used for this study has data on the non-fatal injuries, "how common they are, who they affect, and what causes them" (CDC, 2016).

Secondary Dataset

The dataset selected for this study was the Web-Based Injury Statistics Query and Reporting System [WISQARS]. The WISQARS data is from the National Electronic Injury Surveillance System all Injury Program (CDC, 2016). Per CDC (2016) age, race/ethnicity, sex, and disposition (where person goes when released from emergency department), cause/mechanism of injury and intent of injury is included in collected data. The dataset can enable one to determine if there is a relationship between depression and prevalence of adolescent self-mutilation. Multiple factors that could lead one to engage in intentional or unintentional self-mutilation behavior was assessed by analyzing data from WISQARS. "Researchers, the media, public health professionals, and the public can use WISQARS data to learn more about the public health and economic burden associated with unintentional and violence-related injury in the United States" (CDC, 2016). Other sources of information for this research are listed below.

1) The National Institute of Mental Health: Adolescent Depression

2) Journal of Child and Adolescent Psychiatric Nursing

3) Journal of Abnormal Child Psychology

4) The Centers for Disease Control and Prevention

5) Mental Health America

6) European Child and Adolescent Psychiatry

7) Healthy People 2020 Topics: Mental Health and Mental Disorders

8) American Journal of Orthopsychiatry

9) Journal of Youth and Adolescence

10) Frontiers in Psychology

11) Professional School Counseling

12) Behavioral and Social Science Research

13) Journal of School Nursing

14) Journal of College Student Development

Sampling Procedures

Archival data gathered from the original dataset by WISQARS during the year 2016 to 2018.

Sampling Strategy

The sampling method was convenience sampling. This sampling method was selected because investigators already compiled the data. When using secondary data, convenience sampling is the choice of sampling method. The multistage sampling strategy would be a better fit, because clustering (a probability sampling approach) would

be representative of a geographic section (Boo and Froelicher, 2012). Per Boo and Froelicher (2012) nationally large samples from a dataset is more "generalizable and safer from threats to external validity than results from small studies using convenience sampling."

Large datasets generally have pre-constructed weights. In the WISQARS finds that the NEISS hospitals are a "stratified probability sample of all U. S. hospitals that have at least 6 beds and offered 24-hour emergency department services, and data are weighted to produce national estimates" (Healthy People 2020, 2014).

How Sample Drawn

The dataset WISQARS was accessed online and parameters (age groups, study years and type of non-fatal injury) for the sample population was entered into the system to generate data report. Once the data report was generated, then the data was downloaded into a CSV file produced by the National Center for Injury Prevention and Control, CDC, NEISS All Injury Program. Duplicate columns were deleted and remaining file sheets were merged into one excel spreadsheet.

Calculating Sample Size

The sample size is predetermined in secondary analysis, but since this study looked at a specific group (adolescents) and subgroup (specific age or race/ethnicity) one would need to ensure enough power to investigate research questions (Boo and Froelicher, 2012). The alpha level is set at 0.05., the power is 80% because the beta value is 0.20, and the effect size could be moderate or large, but these were determined by the selected inferential statistics. The power calculation eliminated the risk for a type I and a

type II error. Sampling only allows one to estimate parameters and this would mean there is a possibility of error (Dunn and Palermo-Kielb, 2015).

One can have a report showing the advanced statistics for the sample chosen in the WISQARS dataset. The summary statistics provided the "national estimate, population, crude rate and age-adjusted rate" (CDC, 2017). The standard error (SE) was used to calculate the 95% confidence interval (CI), "computed as the national estimate 1.96 (SE) and the 95% CI is a standard measure of reliability when estimates on sample data" (CDC, 2017). Per CDC (2017) WISQARS considers "a national estimate unstable and potentially unreliable when: the estimate is less than 1,200; the number of records used is less than 20, and the CV exceeds 30%."

Inclusion/Exclusion Criteria

Only adolescents who went to the emergency room as a patient at one of the 66 NEISS hospitals were selected. Exclusion was to not include any data from local teen clinics, private doctor offices, or other medical facilities.

Data Collection of Dataset

Archival data was gathered from the original dataset by WISQARS (Web-Based Injury Statistics Query and Reporting System) during the years from 2016 to 2018. Data was uploaded into SPSS online version 24 for further analysis after raw data was cleaned and coded to ensure SPSS could read data.

Gaining Access to Dataset

The dataset selected, WISQARS is available online. The data is from the National Electronic Injury Surveillance System all injury program (CDC, 2011a.). No specific

permission is needed to access the selected dataset. Per the CDC (2016) "researchers, the media, public health professionals and the public can use WISQARS data to learn more about the public health and economic burden associated with unintentional and violence-related injury in the United States."

Instrumentation and Operationalization of Constructs

Instruments Used

Primary researchers entered their data into the Web-based Injury Statistics Query and Reporting System (WISQARS) that is an interactive database providing injury data on fatal and non-fatal injury, violent death, and cost of injury (CDC, 2018a.). Data entered into WISQARS is from the National Electronic Injury Surveillance System All Injury Program (NEISS-AIP) operated by the U. S. Consumer Product Safety Commission with the Centers for Disease Control and Prevention, National Center for Injury Prevention and Control (NCIPC) (CDC, 2016).

Operational Definition

The independent variable is depression. Depression is defined as being in a depressed mood or loss of interest or pleasure for a period of two weeks or longer, and "at least four other symptoms of problems with sleeping, eating, energy, concentration, and self-image (NIMH, 2007).

The dependent variable is self-mutilation. Self-mutilation is defined as intentionally destroying body tissue, such as cutting or burning one's arms or legs without the wish to die (American Academy of Child and Adolescent Psychiatry, 2013).

Non-suicidal self-injury, self-injury, self-directed violence, and self-punishment are terms used to identify one engaged in self-mutilation behaviors.

Confounding variables are gender, age, race/ethnicity, and socio-economic status.

How Variable is Measured

The level of measurement for depression is a nominal level. Labels can be yes (has depression) = 1; and no (does not have depression) = 2.

The level of measurement for self-mutilation is a nominal level. Labels can be yes (engages in self-mutilation) = 1; and no (does not engage in self-mutilation) = 2.

Gender is a categorical variable and participants will be identified as male or female. The level of measurement is nominal, and the two categories will be labeled as male = 1 and female = 2. Visual display of a bar chart will show the differences in frequencies for the nominal variable of gender. Age ratio level of respondents can be grouped in the dataset to display age 13-15 and 16-19, but this may be changed once this researcher can have access to dataset to determine if the grouping is necessary. A visual display of a histogram can be used to display the age of respondents.

<div align="center">**Data Analysis Plan**</div>

Identify Software Used

Data were analyzed by using the Statistical Package for the Social Sciences (SPSS) version 24. Data from the original source from the years 2015 through 2017 was uploaded for further analysis into SPSS Utilizing SPSS enabled this researcher to create

descriptive statistical tables for the socio-demographic characteristics of the study

population and to perform statistical testing for both research questions.

Data Cleaning and Screening Procedures

Per Meyers (2005) once data has been collected one needs to ensure that the

appropriate numerical codes are used for the variables under study. If gender is coded

with the same label (1 for males and 2 for females) "we can say that this variable is

clean" (Meyers, 2005). So, each variable will be coded with the same label for depression

and self-mutilation, but labels will be based on either yes = 1 for having depression or

engaging in self-mutilation or no = 2 for not having depression or not engaging in self-

mutilation behavior. In the original dataset, coding was conducted by "trained onsite

hospital coders" (CDC, 2016). All data elements were coded except the cause of injury

then entered into a computer and "sent electronically to CPSC headquarters in Bethesda,

MD, NEISS-AIP quality assurance coders at CPSC headquarters reviewed all data and a

narrative for each case from the 66 NEISS-AIP hospitals" (CDC. 2016). It was noted that

the hospital coders "were trained not to interpret information provided by hospital

records, but to transcribe exactly what medical providers recorded for each ER visit"

(CDC, 2016). Data was weighted by the "inverse of the probability of selection to

provide national estimates" (CDC, 2016).

Statistical Test Used

Chi-Square analysis was conducted to detect if there was a statistically significant

relationship between race, gender, and age and the dependent variable. If found to be

statistically related, will control for all three covariates in analysis. Table showing

frequencies and percentage for demographics (age, gender, and race/ethnic); and procedures to account for multiple statistical tests. Table for summary statistical analysis (ordinal, Chi-square, Pearson Chi-Square, and Fisher Exact Test). Individual tables for each research question and the tests used to answer the question are displayed.

How Results Will Be Interpreted

One will need to make sure the proper statistical tests were used and that results were presented correctly. Data will be interpreted only if there is a statistical significance of the observed relationship, if not, there could be bias in results. Only valid and unbiased research conducted in a professional and competent manner should be published (Simundic, 2013).

<div align="center">Threats to Validity</div>

Threats to Internal Validity

History: Since this study used secondary data, unsure how much control initial researcher may have used to control outside events. Randomization of data will minimize this.

Maturation: This study did not look at specific treatment of individuals with depression, but one could assume that being treated for depression might lead to a decrease in self-injurious acts to a person's body.

Instrumentation: Data for this area was addressed once this researcher accessed the dataset to identify if there were any pre or post testing done.

Selection: Subjects who went to an emergency room had their ER visit entered into a surveillance system. Then, data collected by WISQARS and made available to the public.

Mortality: Since the initial investigator collected data from emergency room visits by people in certain areas of the country, subject dropout was no issue.

Threats to Construct Validity

Demand Characteristics: Since this is secondary data, it is unknown if primary researcher had gone to each hospital emergency room and enlisted hospital employees to assist in specific data collection.

Hawthorne Effects: There is no indication that a control group was done, and it is highly unlikely since each hospital ER entered data into a surveillance system.

Treatment Interaction: There is no indication that subjects were given treatment prior to coming to the hospital, but one might expect individuals were given prescriptions upon discharge. There was no information available to determine if primary researcher controlled for threats to external validity. External variables can be improved by setting experiments in a more natural setting and using random sampling to select participants.

According to the World Health Organization [WHO] (2019) "research ethics govern standards of conduct for scientific researchers. It is important to adhere to ethical principles in order to protect the dignity, rights and welfare of research participants." In this secondary study, all Walden University policy for ethical procedures were followed. Before data collection could begin, this researcher had to get IRB approval.

Summary

This quantitative study collected data from the Web-Based Injury Statistics Query and Reporting System [WISQARS]. Inclusion criteria was to select only adolescents who went to one of the 66 NEISS hospitals in the United States. Exclusion criteria was to not use any data on adolescent visits to primary care providers or other health clinics. IRB approval received from Walden University and data was collected, variables were coded with appropriate labels and statistical analysis was provided online in SPSS. All ethical procedures for Walden University doctoral students was followed. No permission was needed to access the WISQARS dataset online, and no identifiers of respondents are available from original dataset. This study on adolescent depression and individuals engaged in self-mutilation behavior is essential due to the increased prevalence of self-violence against one's own body in the United States. Section 3 will give the results and findings of this study which will further add to the research on adolescent depression and self-mutilation behavior.

Section 3: Presentation of the Results and Findings

Introduction

The purpose of this study was to determine if there was a relationship between self-mutilation behaviors among adolescents with depression and the second research question of how adolescent depression correlates with race/ethnicity and self-mutilation behavior. This quantitative study used secondary data from WISQARS. Data analysis seek to reject or accept the null hypothesis of, there is no significant differences in self-mutilation among depressed adolescents; and there is no significant difference in race and

self-mutilation behaviors among depressed teens. Descriptive statistics provided the analysis of the demographic characteristics of the sample. Univariate analysis further justified the inclusion of confounding variables. Statistical assumptions were addressed to conclude section three.

Data Collection of Secondary Dataset

The time frame for data collection was short compared to conducting a qualitative study. The Institutional Review Board (IRB) at Walden University ensures that all student research follows the university's ethical standards including the United States federal regulations (Walden University Center for Research Quality, 2019). All university research must receive IRB approval and meet ethical standards that ensure "safety and privacy risk are minimized" (Walden University Center for Research Quality, 2019). Once IRB approval was received to begin data collection, this researcher accessed the WISQARS dataset on June 1, 2019. There was no need for approval or to seek permission, because the dataset is free for public use. There is no cost for the material and one can enter the criteria for their own research and a report is generated with specific sample characteristics.

Baseline Descriptive and Demographic Characteristics of the Sample

In the WISQARS dataset the continuing variable self-harm injury and a categorical variable gender was selected to conduct descriptive analysis. Descriptive analysis tables and a visual display of data results was created from using IBM SPSS Statistics online. Random sampling of cases was conducted looking at males (coded 1) and females (coded 2) (WISQARS Data, 2014). Descriptive statistics described the

sample data by showing the range of values, their average, and the highest category. One

will be able to gain a further knowledge about the study sample (Simpson, S. H., 2015).

     Descriptive statistics of the categorical variable gender for central tendency reveals

the mean, median and mode (see Appendix Table B1 and Table B2) reveals the

respondent's valid percent for non-suicidal self-injury (NSSI) males as 24.4% and for

females as 75,6%. See Appendix *Figure C*1, the bar chart for frequency distribution of

gender, which shows a visual of the frequency for males and females *N* = 114,345 (IBM

SPSS Statistical Online Version 24). Black respondents had a valid percent of 7.8%;

Hispanic with a valid percent of 6.5%; Not stated for other groups with a valid percent of

19.0%; other non-Hispanic had a valid percent of 3.1%; other for White Non-Hispanic

showed a valid percent of .2%; and White respondents had a valid percent of 63.2% (see

Appendix Table B4, Frequency for Race). In *Figure C2* one can see that white

respondents had the highest frequency for NSSI, and the group that did not state their

race is the second highest frequency for NSSI (See Appendix C, Fig. 2 for more

information). Descriptive statistics for self-harm (cut) in Table B5 shows the mean,

median and mode; and Table B6 reveals the mean, median and mode for

Non-suicide self-injury (NSSI) and gender (Appendix p 115). In *Figure C4 (*See

Appendix) the histogram shows that females *N* = 86,463 with a standard deviation of

.003. In *Figure C5* the histogram for males *N* = 27,882 with standard deviation of .019

(See Appendix C, Fig. 5). In *Figure B6* the mean age for respondents was 15.05 with a

standard deviation of 1.867 (See Appendix C, Fig. 6). In *Figure C7* the mean age for

Black respondents were 16.36 with a standard deviation of 1.044 (See Appendix C, Fig.

7). In *Figure C8* the mean age for white respondents was 15.95 with a standard deviation

of 1.837 (See Appendix C, Fig. 8). In *Figure C9* the mean age for Hispanic respondents

was 15.73 with a standard deviation of 1.795 (See Appendix C, Fig. 9). In *Figure C10* the

mean age for race not stated was 15.83 with a standard deviation of 1.905 (See Appendix

C, Fig. 10). In *Figure C11* the mean age for other not Hispanic race was 16.12 with a

standard deviation of 1.781 (See Appendix C, Fig. 11). In Table B9 the sum of

females who was admitted to the hospital is $N = 12,264$ and for males admitted to the

hospital was $N = 4,951$ (Appendix p 130). Individuals admitted to the hospital were given

a diagnosis of depression in addition to self-mutilation (cut, burn, poison). In *Figure C12*

the histogram is positively skewed right with a mean of .14 for females being admitted to

the hospital and a standard deviation of .349 (See Appendix C, Fig. 12). In *Figure C13*

the histogram is positively skewed right and the mean for males being admitted to the

hospital is .18 with a standard deviation of .392 (See Appendix C, Fig. 13).

Chi-Square Results:

Sampling bias is decreased due to using secondary data. Both male and female

subjects aged 13 to 19 years had gone to an emergency room that participated in the

national surveillance reporting system.

Multivariate Analysis Results

Statistical Assumptions of Study

The statistical assumptions of Normality or continuous variables are normally

distributed; Linearity or relationship between variables; and Homogeneity of variables for

equal variances will all be assessed by running a linear regression in SPSS. In SPSS go to

analyze, then regression, click linear. Self-harm (cut) was entered for the outcome or

dependent variable and hospital (depression) was entered for predictor or independent

variable. Now, click statistics and select collinearity diagnostic, the estimate and model

fit should already be checked. Now select Plots and enter the predicted value (*ZPRED)

in the X box; and the residual value (*ZRESID) in the Y box. Also, make sure the normal

probability plot box is checked and continue. Now, click OK. A normal regression output

shows below.

Table 1.

Linear Regression tables.

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	hospital	.	Enter

a. Dependent Variable: cut

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.004[a]	.000	.000	.010

a. Predictors: (Constant), hospital

b. Dependent Variable: cut

Note: From IBM SPSS Statistics online version 24.

Table 2.

Anova table.

Model	Sum of Squares	df	Mean Square	F	Sig.

1	Regression	.000	1	.000	1.950	.163[b]
	Residual	10.999	114312	.000		
	Total	10.999	114313			

a. Dependent Variable: cut

b. Predictors: (Constant), hospital

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.000	.000		31763.792	.000		
	hospital	.000	.000	.004	1.397	.163	1.000	1.000

Dependent Variable: cut

    Looking at the variance inflation factor (VIF) = 1.000 checks absence of multicollinearity. The VIF value is below 10.00 and this assumption is met. Per Statistics Solutions (2019) it is best if the VIF value is below 5.00.

Collinearity Diagnostics

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	hospital
1	1	1.388	1.000	.31	.31
	2	.612	1.506	.69	.69

a. Dependent Variable: cut

Figure 1. P-Plot.

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: cut
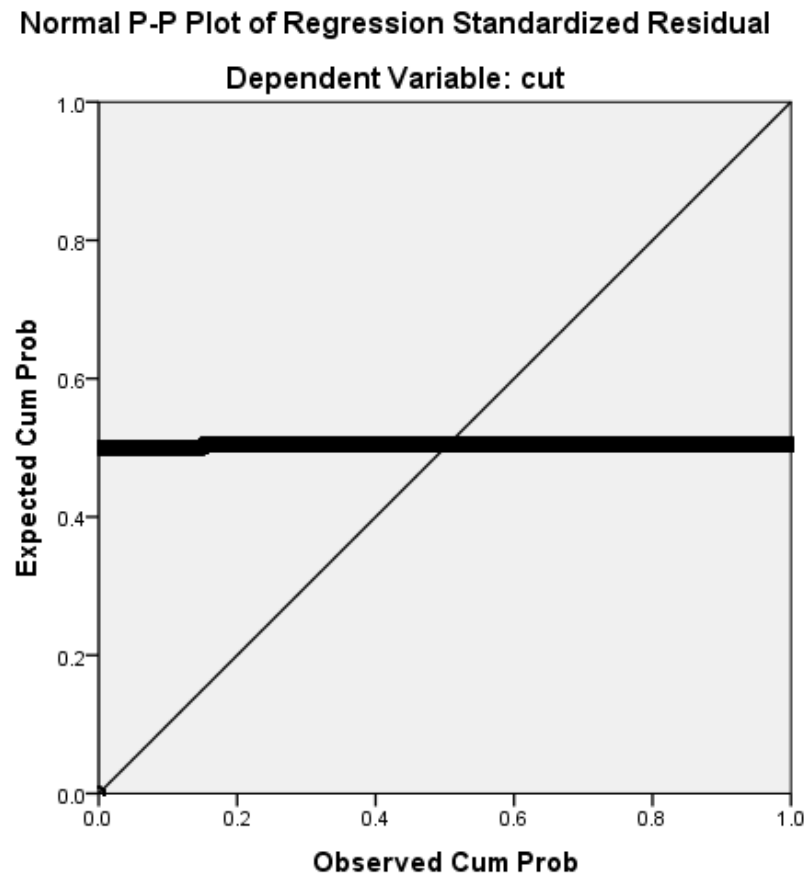
From. IBM SPSS Statistics online version 24.

In looking at the P-Plot one can assume normality as there is no drastic deviation in the shape of data (Statistic Solutions, 2019).

Figure 2. Scatterplot.

Scatterplot

Dependent Variable: cut
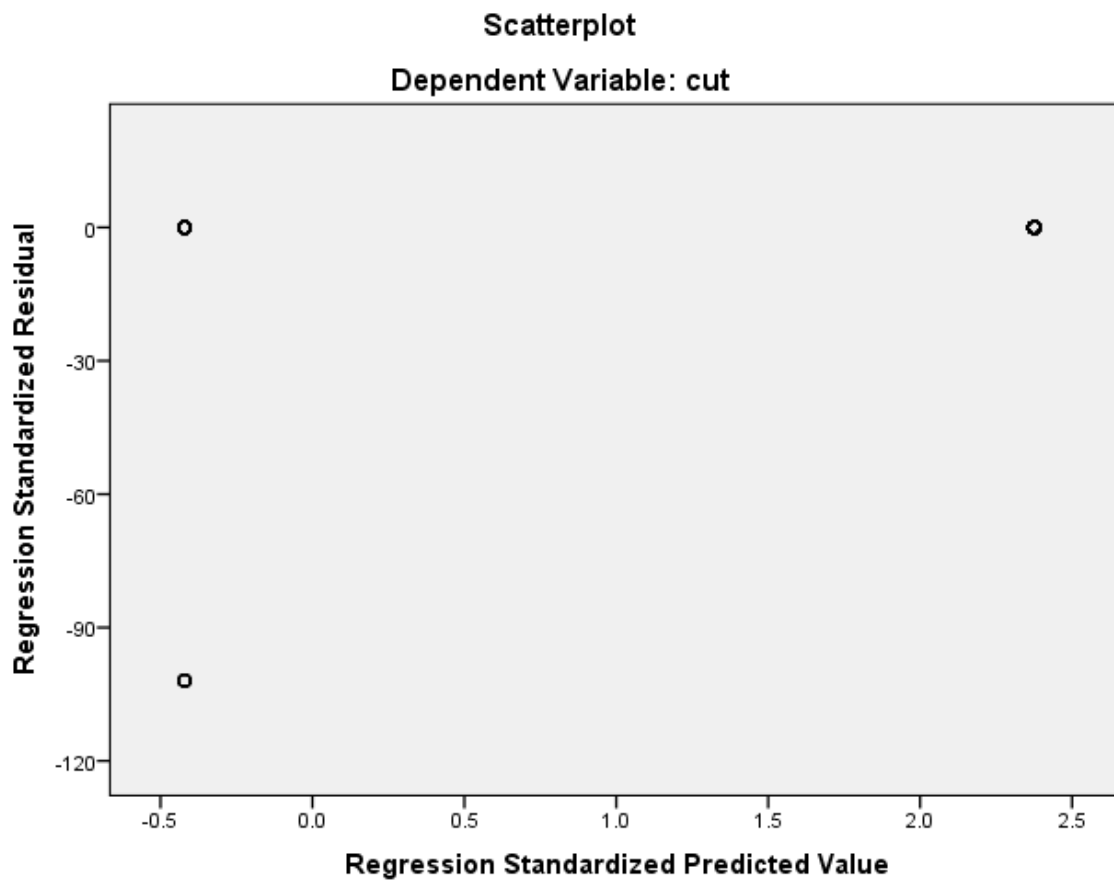
From. IBM SPSS Statistics online version 24.

The assumption of homoscedasticity is met by looking at the scatterplot. The data is scattered and not closely together. Per Statistics Solutions (2019) if homoscedastic data is not met the data will be more tightly together.

Statistical Analysis of Research Questions and Hypothesis

Is there a relationship between depression and adolescent self-mutilation?

Null hypothesis: There is no significant difference in self-mutilation among depressed adolescents.

Table 3.

Cross tabulation for age and self-harm (cut).

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
cut * age	114345	100.0%	0	0.0%	114345	100.0%

*cut * age Crosstabulation*

Count

		age							
		13	14	15	16	17	18	19	Total
cut	no cut	1	2	0	1	0	3	4	11
	yes cut	11786	18614	19562	18805	18329	13465	13773	114334
Total		11787	18616	19562	18806	18329	13468	13777	114345

Note. From IBM SPSS Statistics online version 24.

In looking at the cross tabulation in Table 3 for age and self-harm (cut), there were $N= 11$ with no self-harm (cut) and $N = 114,334$ individuals who had engaged in self-harm (cut). The group who reported yes for self-harm (cut) is much larger that the group who had reported no for self-harm (cut). Age 15 had the highest number of teens who had engaged in self-cutting $N = 19, 562$; age 16 was next for self-cutting with $N = 18,805$; age 14 was third highest $N = 18,614$; age 17 was fourth with $N = 18,329$; age 19 was fifth highest with $N = 13,773$; sixth highest was age 18 $N = 13,465$; and the lowest group for self-cutting was age 13 with $N = 11,786$.

Table 4.

Chi-square for age and self-harm (cut).

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
					95% Confidence Interval			95% Confidence Interval	
				Significance	Lower Bound	Upper Bound	Significance	Lower Bound	Upper Bound
Pearson Chi-Square	11.688[a]	6	.069	.061[b]	.059	.062			
Likelihood Ratio	12.881	6	.045	.072[b]	.071	.074			
Fisher's Exact Test	9.830			.038[b]	.037	.039			
Linear-by-Linear Association	3.493[c]	1	.062	.062[b]	.060	.063	.037[b]	.036	.038
N of Valid Cases	114345								

a. 7 cells (50.0%) have expected count less than 5. The minimum expected count is 1.13.

b. Based on 114000 sampled tables with starting seed 743671174.

c. The standardized statistic is -1.869.

Symmetric Measures

		Value	Approximate Significance	Monte Carlo Significance		
					95% Confidence Interval	
				Significance	Lower Bound	Upper Bound
Nominal by Nominal	Phi	.010	.069	.061[c]	.059	.062
	Cramer's V	.010	.069	.061[c]	.059	.062
N of Valid Cases		114345				

c. Based on 114000 sampled tables with starting seed 743671174.

Note. From IBM SPSS Statistics online version 24.

Table 5.

Cross-tabulation for cut and hospitalized.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
cut * hospital	114314	100.0%	31	0.0%	114345	100.0%

*cut * hospital Crosstabulation*

Count

		hospital		
		nonhospital	yes hospital	Total
cut	no cut	11	0	11
	yes cut	97088	17215	114303
Total		97099	17215	114314

Note. From IBM SPSS Statistics online version 24.

In the cross-tabulation for self-harm (cut) and respondents being hospitalized, there are 11 subjects reporting no cut, and 114,303 reporting self-cutting. The group with no self-cutting $N = 11$, no individuals were hospitalized. The group reporting yes, for self-cutting $N = 114,303$, a total of $N = 17,215$ were hospitalized and $N = 97,088$ were discharged home. Ones being admitted to the hospital were given a diagnosis of depression. The null hypothesis is that there is no difference in self-mutilation among depressed adolescents.

Table 6.

Chi-square for cut and being hospitalized.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1.950[a]	1	.163	.236	.166	
Continuity Correction	.951	1	.330			
Likelihood Ratio	3.591	1	.058	.182	.166	

Fisher's Exact Test				.389	.166
Linear-by-Linear Association	1.950^d	1	.163	.236	.166	.166
N of Valid Cases	114314				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.66.

b. Computed only for a 2x2 table

c. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

d. The standardized statistic is 1.397.

Symmetric Measures

				Monte Carlo Significance		
			Approximate		95% Confidence Interval	
		Value	Significance	Significance	Lower Bound	Upper Bound
Nominal by Nominal	Phi	.004	.163	.236^c	.234	.239
	Cramer's V	.004	.163	.236^c	.234	.239
N of Valid Cases		114314				

c. Based on 114000 sampled tables with starting seed 1502173562.

Note. From IBM SPSS Statistics online version 24.

In Table 6 for Chi-square the Pearson chi-square = 1.950; dif = 1; and asymptotic significance = .163. Since the significance level is not less than .05, we cannot reject that the null hypothesis of no difference between self-mutilation and adolescent who are depressed has been supported. The null hypothesis is not rejected.

The Fisher exact test, 2 sided 95 CI, significance = .389.

Does adolescent depression correlate with race/ethnicity and self-mutilation behavior?

Null hypothesis: There is no significant difference in race/ethnicity and self-mutilation behavior among depressed adolescents.

Table 7.

Cross tabulation for race and NSSI.

		Black	Hisp	Not Stated	Other NH	Other NS	White	Total
cut	no cut	1	0	1	9	0	0	11
	yes cut	8954	7395	21732	3509	285	72247	114334
Total		8955	7395	21733	3518	285	72247	114345

Note. From IBM SPSS Statistics online version 24.

In the cross tabulation for race and self-cutting in Table 7, there are a total of $N = 11$ subjects who reported no for self-cutting; and $N = 114,334$ for subjects reporting yes for self-cutting. The group that reported no ($N = 11$) is much smaller than the group reporting yes ($N = 114,334$) for self-cutting. The race with the highest rate for self-cutting was White $N = 72,247$; the second highest race for self-cutting was the group who did not report race (not stated) $N = 21,732$; the third highest race group was Black with $N = 8,954$; Hispanic group were fourth with $N = 7,395$; the last groups were other non-Hispanic $N = 3,509$; and other not stated $N = 285$. The null hypothesis is that there is no difference in race/ethnicity and NSSI among adolescents who are depressed.

Table 8.

Chi-square for race and NSSI.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided) Significance	95% Confidence Interval Lower Bound	Upper Bound
Pearson Chi-Square	230.000[a]	6	.000	.000[b]	.000	.000
Likelihood Ratio	57.897	6	.000	.000[b]	.000	.000
Fisher's Exact Test	59.454			.000[b]	.000	.000
N of Valid Cases	114345					

a. 6 cells (42.9%) have expected count less than 5. The minimum expected count is .02.

b. Based on 114000 sampled tables with starting seed 2000000.

Symmetric Measures

		Value	Approximate Significance	Monte Carlo Significance		
				Significance	95% Confidence Interval	
					Lower Bound	Upper Bound
Nominal by Nominal	Phi	.045	.000	.000[c]	.000	.000
	Cramer's V	.045	.000	.000[c]	.000	.000
N of Valid Cases		114345				

c. Based on 114000 sampled tables with starting seed 2000000.

Note: From IBM SPSS Statistics online version 24.

In Table 8 for race and NSSI, Chi-square results reveals that the Pearson

Chi-square = 230.000; dif = 6; and asymptotic significance = .000. Since the

Significance level is less than .05 we can reject that the null hypothesis of no difference

in race and NSSI among teens who are depressed has not been supported. The null

hypothesis is rejected. Fisher exact test value = 59.456 and the 2-sided, 95 CI

significance level = .000.

Literature Review Data Analysis

Table 9.

Literature Data Analysis

Study	Population	Study design	Independent variable	Dependent variable	Covariates	Results
Deutz et al. (2016	*N = 697*	Secondary Data	Self-harm & suicidal ideation	Dysregulation Syndrome	Gender, parents & time	Middle childhood & adolescence, dysregulation with three specific factors of anxious, depressed, & aggressive

						behavior and attention problems was positively related to adolescent-reported self-harm & suicide.
Grandlerc et al. (2016)	*N =not given*	Systematic review Of 64 articles	Non-suicidal self-injury	Suicidal behavior	Age, gender & ethnicity	Non-suicidal self-injury can be a gateway enabling teens to acquire the capability of suicide. It is difficult to conceive an intention to die during adolescents acts of self-injury, because suicidal behavior short-circuits thoughts. However, 70% of teens with a history of self-injury had attempted suicide at least once.
Gulbas et al. (2015)	*N = 139*	Exploratory Study-qualitative Interviews	Non-suicidal self-injury	Suicidal behavior	Gender, ethnicity & socio-economic status	Latino female adolescents engaged in non-suicidal self-injury to control negative feelings. Over a 12-month period Latino teens attempted suicide (15.6%). Family conflict concerning autonomy was a factor in 77.8% of female subjects who engaged in NSSI.
Harmelen et al. (2016)	*N = 771*	Longitudal study	Early life stressors	Depression	Gender, age & bullying	Negative experiences in the home environment between the ages of 11 and 14 can contribute to

depressive symptoms by age 17. Specifically, "relational bullying was negatively associated with adolescent friendships at age 14, which in turn were negatively associated with depressive symptoms at age 17." Enhancing affiliate relationships and positive environments may benefit the mental health of vulnerable youth that have experienced family and/or primary school bullying.

| King et al. (2015) | *N =81* | Prospective study | Self-injury | Depression | Age, interpersonal Violence & substance use | Adolescents who screened positive for suicidal ideation and/or attempt plus depression and alcohol/substance misuse (38.8%) were most likely to engage in future suicidal behavior. |

| Lee & Liechly (2015) | *N = 2678* | Longitudinal study | Ethnic identity | Depression | Immigrant & non-immigrant status | Immigrant density predicted decreased odds of depression for male and female, but not for non-immigrant Latino teens. The prevalence of depression is higher in the Latino teen |

population than other ethnic groups.

Ludkte et al. (2017)	*N = 447*	Self-report Measures	Non-suicidal self-injury	Mental health Problems	Gender, age & anti-social behavior	<u>Repetitive NSSI</u> was significantly associated with females (48%), increased age, novelty seeking, harm avoidance, self-transcendence, anti-social behavior, and decreased levels of persistence and self-directedness.
Monto, McRee & Reryck (2018)	*N =64,671*	Youth-risk behavior surveillance	Non-suicidal self-injury	Depression	Gender, age, health risk & ethnicity	High school teens in 11 states participated in this research. In Nevada 14.8% male youths engaged in NSSI, but only 6.4% of male teens in Delaware engaged in NSSI. Female subjects in Delaware that engaged in NSSI (17.7%), but female teens in Idaho revealed 30.8%) engaged in NSSI. In all cases, depression, suicidal thoughts, substance use and being electronically bullied was associated with NSSI. <u>There were statistically</u> significant gender differences ($p < .05$) with females planning suicide

or attempting suicide than boys.

Scott et al. (2015)	*N=1950*	Prospective study	Non-suicidal self-injury & suicide ideation	Suicide attempts & depression	Gender, age, adversity & history of NSSI	Girls with a history of both NSSI and SI were significantly more likely to subsequently report both lifetime and recent suicide attempts.+
Seymour & Puzia (2015)	*N = 90*	Pilot study Inpatient Research	Non-suicidal self-injury	Bio-behavioral Mechanism & depression	Gender, age & full-scale IQ	Subjects with major depression made fewer errors on adult sad face recognition even when controlling for group status. Adolescent inpatients engaged in NSSI showed greater deficits in emotional face recognition than TCD, but not inpatient adolescents who attempted suicide.
Stockburger (2017)	*N =not given*		NSSI	Depression	Gender and age	There were 12% to 37.2% of middle school children engaged in NSSI and late teens accounted for 20% of teens engaged in NSSI. Hopelessness, isolated from family, depression, and anxiety increased the risk for NSSI.
Tanner, Hasking & Martin (2015)	*N =2356*	Self-report Questionnaire	Non-suicidal self-injury & fire setting	Psychological Status	Gender, negative life events & coping mechanism	Subjects aged 12-18 years (N = 2356, 67.5% female) reported that negative life events and poor

coping mechanisms increased the likelihood that they would engage in maladaptive behaviors.

Wester & Trepal (2015)	*N = 1096*	Web-based survey	Non-suicidal self-injury	Depression & anxiety	Race/ethnicity	A sense of ethnic belonging was significantly related to NSSI behavior *p < .001.* Ethnicity results for engaging in NSSI was 28.6% (Native American); 17.8% (Hispanic); 16.3% (White); 16.1% (other/multiracial); 8.4% (Black); and 7.0% (Asian)'
Wyatt et al. (2015)	*N =72,691*	Cross-sectional Systematic Review-66 studies	Suicide	Depression	Gender & ethnicity	Asian sexual minority youths were at decreased risk for suicidal ideation and planning compared to white minority youths. Asian sexual female minority subjects had decreased lower suicidal ideation prevalence compared to white sexual minority females. However. Southeast Asian boys reported more suicidal thoughts and attempts than southeast girls did.
Xavier, Gouveia & Cunha (2016)	*N = 782*	Cross-sectional; self-report measures	Depression	NSSI	External shame, self-criticism; fear of self-compassion	Female subjects were more self-critical and more sensitive to negative life

						events than males. However, male subjects displayed more self-compassion. Self-hatred, external shame and fear of self-compassion all indirectly predicted NSSI.
Yen et al. (2015)	*N = 119*	Longitudinal study	Self-mutilation	Suicidal behavior	Gender, family & peer invalidation, race & aggression	Perceived family invalidation predicted SE over follow-up for males only and peer invalidation predicted self-mutilation over follow-up in the overall sample (both gender groups).

Related to construct of interest

It was noted in the study by Monto, McRee, and Deryck (2018), $N = 64,671$ that there was no one racial or ethnic population immune to NSSI. In the current study, racial/ethnic groups identified were Black, White, Hispanic, Other non-Hispanic, and Other not stated. Subcultures within each group may play a role in whether teens engage in NSSI. Per Monto, McRee, and Deryck (2018) further study is needed to address this phenomenon. In the research by Wester and Trepal (2015, $N = 1,096$) Native Americans (28.6%) and Hispanic/Latino (17.8%) were the racial/ethnic groups with the highest prevalence of NSSI. Reasons for on engaging in NSSI among the groups were the negative relationships between an ethnic sense of belonging and NSSI acts (Wester and Trepal, 2015). Racial groups with the highest rate of NSSI in the current study were

White $N = 72,247$.

Even in the study by Wyatt et al., (2015, $N = 72,691$) Asian males were at an increased risk for suicide attempts than Asian girls, but any teen suffering from depression increases their risk for emotional and other health problems. In the study by Lee and Liechly (2015, $N = 2,678$) Latino youth (22%) in grades 6-10 had the highest prevalence of depression. Immigrant Latino adolescents face multiple challenges from cultural conflicts, language barriers, discrimination, and cultural conflicts with parents or other caregivers that increases one's risk of developing negative coping behavior. Per Gulbas et al., (2015, $N = 139$) in America the Latino population accounted for a growth of the total population growth (43%) between the years from 2000 to 2010. However, this percentage is probably under, estimated in the United States today due to the growing immigrant and non0immigrant populations. Public health officials will need to ensure that cultural diversity is addressed within all health programs.

There may be a looming health crisis among all the youth coming into this country for future mental health issues. Gulbas et al., (2015) reported"transitional stress" a desire to return to their country of origin, fragmented families, and victims of violence, bullying, and other family conflicts further increases Latino teens for engaging in self-harm behaviors. This study revealed a limited number of Hispanic individuals who were treated at local emergency rooms ($N = 7,395$), but there were ($N = 21,733$) that failed to list their racial/ethnic identity.

Related to research questions

In the study by Tanner, Hasking, and Martin (2015, $N = 2,356$) teens who engaged in NSSI increased due to poor self-esteem and rumination. Self-destructive behavior in one's youth increases the probability for future self-harm acts and/or suicide. The current study revealed that $N = 114,334$ adolescents engaged in NSSI and $N = 17,215$ for teens diagnosed with depression. Self-mutilation can take many forms "cutting, burning, head banging, and scratching oneself to the point of bleeding" (Grandclerc, 2016, $N = $ not given). Per King (2015, $N = 81$) there is a need for suicide risk screening in local emergency departments because "one-third of all adolescents in the United States seek emergency services each year." An alarming fact in the study by King (2015) 38.9% of adolescents with depression and who had screened positive for suicidal ideation, would most likely attempt suicide in the future. In the study by Seymour and Puzia (2015, $N = 90$) the rate of NSSI increases in 80% for teens with mental health issues.

Per the Centers for Disease Control [CDC] (2016b.), the greatest increase in suicide rates from 1999 through 2014 were females aged 10-14 and for males aged 45-64. Looking at the current research, females had the highest rate of NSSI ($N = 86,450$). Suicide prevention needs to be included with all community public health events. According to Curtin et al., (2018) suicide was the second leading cause of death for youth aged 10-14 in 2016, with an increase of 56% between 2007 and 2016. Looking at these numbers in comparison to current study, one can see that teens in the United States are still having mental health issues. However, deaths from the report by Curtin et al., (2018)

were due to motor vehicle traffic, drowning, and poisoning. Further study should be done to determine if there is a correlation between poisoning and self-mutilation acts.

In the study by Deutz (2016, $N = 697$) youth with multiple mental health issues (depression, aggressive behavior, and attention problems) was "positively related to adolescent reported self-harm and suicidal ideation." Per Xavier, Gouveia, and Cunha (2016, $N = 782$) teens with increased NSSI were experiencing low self-esteem, self-hatred, and an inability for self-compassion.

Related to key variables

In the study by Scott et al., (2015, $N = 1,950$) suicide ideation is seen first during adolescence and is higher among females. In the current research females were the group with the highest rate for NSSI ($N = 86,463$) and in most of the previous studies. However, in the research by Yen (2015, $N = 119$) though teen girls attempted suicide at an increased rate than males, boys had a higher rate for suicide completion. The need is great for public health professionals to provide prevention efforts and support to families who have been identified through community assessment as high-risk groups. Per Harmelen et al. (2016, $N = 771$) negative family experiences during one's early years contributes to early life stress and plays a role in individuals developing depression. A negative home life between the ages of 11 and 14 contributed to teens displaying depressive symptoms by age 17 (Harmelen et al., 2016). In the current study the age group with the highest prevalence of NSSI was age 15 ($N = 19,562$); and the age group with the lowest prevalence of NSSI was age 13 ($N = 11,787$).

In the study by Ludtke et al., (2017, $N = 447$) youth go through a significant period of development during adolescence. Young people have changes in their biological, psychological, cognitive, social, and emotional domains, but "personality development and identity formation are the core developmental tasks of adolescents" (Ludtke et al., 2017). According to Stockburger (2017) in the United States, there has been an increase in NSSI for middle-school students (12% to 37.2%) and up 17% to 20% for late adolescents and young adults. There was no indication from the current study of any pre-existing personality or identity problems.

Major depressive episodes in teens can lead to negative behavior affecting one's emotional development, academics, personal and professional life throughout adulthood. It is vital for public health professionals to identify teens at risk and youth already displaying mental health symptoms to prevent future cases of self-mutilation and/or suicide.

Summary

Statistical analysis revealed that there was a difference in self-mutilation and depressed adolescents as noted in the Chi-square for research question one. The null hypothesis of there is no difference in self-mutilation among depressed adolescents was not supported with a significance level of .163. The statistical analysis for research question two did show a significance level of .000 and the null hypothesis that there is no difference in race/ethnicity and self-mutilation among depressed adolescents was rejected. In section four, interpretation of findings along with limitations,

recommendations and implications for professional practice and social change will be addressed.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

This quantitative study looked at secondary data to examine the role of self-mutilation behaviors among adolescents with depression. Correlational research was used to identify if there was a relationship among two or more variables using online statistical data (BCPS, 2010). This research sought to determine the relationship between the independent variable (depression) and the dependent variable (self-mutilation behavior). A multiple regression analysis was used to demonstrate the extent of the relationship of these variables with each other. Key findings were that there was no difference in self-mutilation and depressed teens, but there was a difference in race/ethnicity and self-mutilation among depressed teens.

Interpretation of Findings.

The current body of literature on adolescent mental health demonstrates limited understanding of how racial and ethnic identity factors contributes to depression, self-injurious acts, and suicide. This study revealed that the null hypothesis for no difference in self-mutilation and depressed teens was not rejected. However, the null hypothesis for no difference in race/ethnicity and self-mutilation among depressed adolescents was supported.

Interpretation of findings in the Context of the Theoretical Framework.

The theoretical framework used was the SET model to study the overlapping

levels (individual, relationship, community, and societal) that can affect one engaging in

violent behavior or be the victim of violence. Prevention is one of the key terms that all

public health professionals strive to accomplish in their daily work. To prevent disease,

injuries, accidents, and death. When looking at adolescents it is vital to address a person's

mental health status. Self-harm behavior if not prevented may lead to suicide. At the

individual level, one needs to identify teens at risk and provide support/treatment to

prevent future risk of self-harm acts by establishing safe reporting resources (Center for

Disease Control and Prevention [CDC], 2018b.). At the family level one will need to

improve on problem solving skills and family relationships by offering "social-emotional

learning programs" (CDC, 2018b.). At the community level, it is essential to promote

community engagement programs by engaging with local community leaders, school

officials, area medical and business leaders, and law offices to create a protective

environment. Then, at the policy level, public health leaders can gain support from local,

state, and federal leaders to improve access and delivery of suicide prevention care and

ensure there are adequate healthcare providers in undeserved sections of local

communities, and strengthen hosing policies (CDC, 2018b.).

Limitation of the Study

Generalizability of results is one of the benefits of using secondary data. Per Glen

(2016) quantitative research increases generalizability. It was reported by Glen (2016)

that generalizability is a "measure of how well a researcher thinks their experimental

results from a sample can be extended to the population as a whole." Having access to the

WISQARS dataset enabled this researcher to obtain a larger sample size from the

adolescent population who had gone to area hospitals for treatment of violent injuries.

Though not all violence related injuries were attributed to self-injurious acts, results can

be transferred to other adolescents with depression engaging in self-harm acts. Another

limitation was that adolescents who were hospitalized were given up to three diagnoses

either by the attending physician, admitting physician, or private physician. Therefore, it

is unknown if the diagnosis of depression was incorrect or missed in ones discharged

from the emergency room. It was reported by Mental Health America (2017) that the

diagnosis for someone who self-injures can only be determined by a licensed psychiatrist.

It is possible that the ER physician consulted with a psychiatrist before deciding to admit

individual to the hospital.

Socio-economic status was not available in the raw data from WISQARS, but the

initial researcher may have had access to the actual emergency room department

admission forms, which would have given information about insurance and/or income.

One could expect that if a person came to the hospital and was homeless or maybe living

in poverty, would not have insurance. The Office of Adolescent Health (2016) reported

that in 2014, one in five adolescents (18%) were living in poverty in the United States. It

is necessary for public health officials to address the needs of families who come to local

health departments, but to work with hospitals and/or clinics who may see low-income

families. In 2014, there were at least two million adolescents between the ages of 12 and

17 without health insurance (Office of Adolescent Health, 2016). Further research would

need to be done to address the socio-economic status of teens who self-harm and how their financial status might affect their behavioral or mental health problems and if engaging in self-harm acts are attributed to low-income or poverty.

Recommendations

Implications for Professional Practice.

This quantitative research focused on adolescents who were depressed and engaged in self-mutilation acts. Describing the methods used with specific details about data collection and statistical analyses will enable public health professionals to replicate study. Per Sprint Investify (2018), at least one can repeat the study with a similar framework when enough detail is provided. Future research can be conducted to address limitations of this study. Research findings from this study can enhance practice by ensuring public health professionals offer community health screenings for mental health problems and community groups at risk for self-harm behavior. It is critical for public health officials to promote health screenings for depression and offer support to families and their children to prevent future self-harm and/or suicide.

Implications for Social Change.

The implication for positive social change will be to decrease the prevalence of adolescent depression, acts of self-injurious behaviors, and suicide by providing adolescents with essential resources to learn new coping skills and build positive relationships. Self-mutilation is a form of expressed depression. Previous studies have shown that non-suicidal self-injury is increasing in the adolescent population. It will be essential for public health officials to ensure local health departments, and other county,

state, and federal officials know about the prevalence from mental health issues within all communities in the United States. Joining resources from all agencies will be a key component of developing long-term plans to combat mental health problems and prevent future generations from engaging in self-mutilation acts and/or attempting or completing suicide.

Conclusion

Self-mutilation behavior can take many forms. This quantitative study researched whether there was a relationship between self-mutilation (cutting) among adolescents who are depressed, and if there is a difference in race/ethnicity and self-mutilation among depressed adolescents. Final analysis shows that the null hypothesis for research question one is not rejected with a significant level of .163, and there is no difference in self-mutilation and depression. Research question two the null hypothesis was rejected with a significance level of .000, and there is a difference in race/ethnicity and self-mutilation among adolescents with depression.

Recommendation for professional practice is to provide health screenings for mental health issues and other risk factors for self-injurious acts. Future study can be conducted to address limitations from this research but is vital that public health professionals work with local schools, parents, and other county officials to develop ongoing screenings for depression and to identify youth at risk or already engaged in self-mutilation acts. Just as the social ecology model looks at the total environment around one's life, future prevention efforts must include addressing all these areas to reduce the prevalence of depression and self-mutilation in adolescence. It is vital to identify teens

already engaged in self-injurious acts, because NSSI can lead to suicide. Positive social change will be decreasing the prevalence of self-inflicted injury and prevent future cases of what the picture shows, as sometimes a picture is all that is needed.

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Appendix A: WISQARS original data.

Table A1. Self-harm cut/pierce nonfatal injuries.

Self-harm Cut/Pierce Nonfatal Injuries and Rates per 100,000
2015 - 2017, United States
All Races [1], Both Sexes, Ages 13 to 19
Disposition: All Cases

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
2015	Both Sexes	13	All Races	3,594	4,081,296
			White Non-Hispanic	1,819*	2,238,635
			Black	360*	666,412
			Hispanic	162*	910,351
			Other Non-Hispanic	141*	265,898
			Not Stated	1,112*	
		14	All Races	5,937	4,183,831
			White Non-Hispanic	4,309*	2,303,515
			Black	395*	688,309
			Hispanic	501*	917,314
			Other Non-Hispanic	99*	274,693
			Not Stated	632*	
		15	All Races	8,478*	4,249,635
			White Non-Hispanic	7,232*	2,351,085

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Black	296[*]	707,055
			Hispanic	265[*]	918,267
			Other Non-Hispanic	149[*]	273,228
			Not Stated	535[*]	
		16	All Races	6,049	4,184,373
			White Non-Hispanic	3,994	2,338,108
			Black	326[*]	690,478
			Hispanic	650[*]	890,868
			Other Non-Hispanic	268[*]	264,919
			Not Stated	810[*]	
		17	All Races	5,073	4,192,344
			White Non-Hispanic	3,585	2,344,972
			Black	411[*]	693,734
			Hispanic	435[*]	882,016
			Other Non-Hispanic	324[*]	271,622
			Not Stated	319[*]	
		18	All Races	3,386	4,213,143
			White Non-Hispanic	2,082[*]	2,362,233
			Black	306[*]	692,203
			Hispanic	109[*]	878,431

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Other Non-Hispanic	359*	280,276
			Not Stated	530*	
		19	All Races	5,101	4,254,939
			White Non-Hispanic	3,513	2,392,064
			Black	555*	692,960
			Hispanic	299*	879,246
			Other Non-Hispanic	43*	290,669
			Not Stated	690*	
	Males	13	All Races	510*	2,081,376
			White Non-Hispanic	259*	1,147,153
			Black	8*	338,097
			Hispanic	24*	462,535
			Other Non-Hispanic	8*	133,591
			Not Stated	211*	
		14	All Races	700*	2,135,424
			White Non-Hispanic	611*	1,180,813
			Black	54*	349,898
			Hispanic	21*	466,208
			Other Non-Hispanic	15*	138,505
		15	All Races	1,623	2,172,971

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			White Non-Hispanic	1,450[*]	1,206,881
			Black	8[*]	359,845
			Hispanic	24[*]	468,392
			Other Non-Hispanic	24[*]	137,853
			Not Stated	116[*]	
		16	All Races	1,495	2,139,289
			White Non-Hispanic	825[*]	1,200,089
			Black	57[*]	351,435
			Hispanic	98[*]	453,826
			Other Non-Hispanic	65[*]	133,939
			Not Stated	450[*]	
		17	All Races	1,784	2,143,845
			White Non-Hispanic	1,144[*]	1,203,128
			Black	24[*]	352,934
			Hispanic	214[*]	450,759
			Other Non-Hispanic	285[*]	137,024
			Not Stated	117[*]	
		18	All Races	1,624	2,153,257
			White Non-Hispanic	1,021[*]	1,210,243
			Black	85[*]	351,514

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Hispanic	25[*]	449,979
			Other Non-Hispanic	189[*]	141,521
			Not Stated	304[*]	
		19	All Races	1,901	2,180,602
			White Non-Hispanic	1,264[*]	1,229,676
			Black	311[*]	351,865
			Hispanic	255[*]	451,503
			Other Non-Hispanic	0[*]	147,558
			Not Stated	71[*]	
	Females	13	All Races	3,084	1,999,920
			White Non-Hispanic	1,560	1,091,482
			Black	352[*]	328,315
			Hispanic	138[*]	447,816
			Other Non-Hispanic	133[*]	132,307
			Not Stated	901[*]	
		14	All Races	5,237	2,048,407
			White Non-Hispanic	3,699	1,122,702
			Black	342[*]	338,411
			Hispanic	480[*]	451,106
			Other Non-Hispanic	85[*]	136,188

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Not Stated	632[*]	
		15	All Races	6,856[*]	2,076,664
			White Non-Hispanic	5,782[*]	1,144,204
			Black	288[*]	347,210
			Hispanic	241[*]	449,875
			Other Non-Hispanic	125[*]	135,375
			Not Stated	420[*]	
		16	All Races	4,554	2,045,084
			White Non-Hispanic	3,170	1,138,019
			Black	269[*]	339,043
			Hispanic	552[*]	437,042
			Other Non-Hispanic	203[*]	130,980
			Not Stated	359[*]	
		17	All Races	3,289	2,048,499
			White Non-Hispanic	2,441	1,141,844
			Black	387[*]	340,800
			Hispanic	221[*]	431,257
			Other Non-Hispanic	39[*]	134,598
			Not Stated	201[*]	
		18	All Races	1,762	2,059,886

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			White Non-Hispanic	1,060*	1,151,990
			Black	222*	340,689
			Hispanic	85*	428,452
			Other Non-Hispanic	169*	138,755
			Not Stated	226*	
		19	All Races	3,200	2,074,337
			White Non-Hispanic	2,249	1,162,388
			Black	244*	341,095
			Hispanic	44*	427,743
			Other Non-Hispanic	43*	143,111
			Not Stated	620*	
2016	Both Sexes	13	All Races	3,833	4,111,886
			White Non-Hispanic	2,475*	2,242,443
			Black	230*	660,316
			Hispanic	367*	929,314
			Other Non-Hispanic	36*	279,813
			Not Stated	725*	
		14	All Races	5,880	4,096,727
			White Non-Hispanic	4,054*	2,239,510

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Black	354*	669,298
			Hispanic	119*	917,401
			Other Non-Hispanic	42*	270,518
			Not Stated	1,310*	
		15	All Races	6,038	4,201,611
			White Non-Hispanic	3,682	2,304,567
			Black	161*	691,581
			Hispanic	498*	925,296
			Other Non-Hispanic	177*	280,167
			Not Stated	1,519*	
		16	All Races	5,500	4,270,670
			White Non-Hispanic	3,533	2,352,827
			Black	374*	710,779
			Hispanic	328*	927,373
			Other Non-Hispanic	30*	279,691
			Not Stated	1,235*	
		17	All Races	7,523	4,210,248
			White Non-Hispanic	4,484	2,340,665
			Black	731*	694,588
			Hispanic	299*	901,031

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Other Non-Hispanic	67*	273,964
			Not Stated	1,943*	
		18	All Races	4,618	4,223,290
			White Non-Hispanic	2,819*	2,348,221
			Black	94*	697,896
			Hispanic	341*	892,854
			Other Non-Hispanic	84*	284,319
			Not Stated	1,281*	
		19	All Races	4,820	4,245,565
			White Non-Hispanic	3,008*	2,365,503
			Black	434*	696,253
			Hispanic	235*	889,815
			Other Non-Hispanic	239*	293,994
			Not Stated	903*	
	Males	13	All Races	431*	2,096,710
			White Non-Hispanic	87*	1,149,699
			Black	147*	335,135
			Hispanic	108*	471,590
			Other Non-Hispanic	0*	140,286
			Not Stated	90*	

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
		14	All Races	619[*]	2,089,414
			White Non-Hispanic	387[*]	1,147,594
			Black	96[*]	339,565
			Hispanic	6[*]	466,314
			Other Non-Hispanic	0[*]	135,941
			Not Stated	131[*]	
		15	All Races	1,311[*]	2,144,753
			White Non-Hispanic	853[*]	1,181,230
			Black	24[*]	351,650
			Hispanic	245[*]	470,659
			Other Non-Hispanic	6[*]	141,214
			Not Stated	183[*]	
		16	All Races	1,361[*]	2,184,078
			White Non-Hispanic	818[*]	1,207,638
			Black	161[*]	361,735
			Hispanic	35[*]	473,620
			Other Non-Hispanic	0[*]	141,085
			Not Stated	347[*]	
		17	All Races	2,036[*]	2,153,031
			White Non-Hispanic	1,313[*]	1,201,426

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Black	288*	353,372
			Hispanic	29*	459,766
			Other Non-Hispanic	30*	138,467
			Not Stated	375*	
		18	All Races	861*	2,160,245
			White Non-Hispanic	318*	1,204,854
			Black	0*	354,970
			Hispanic	106*	457,026
			Other Non-Hispanic	0*	143,395
			Not Stated	437*	
		19	All Races	1,912	2,170,760
			White Non-Hispanic	1,462*	1,212,156
			Black	84*	353,466
			Hispanic	106*	456,658
			Other Non-Hispanic	0*	148,480
			Not Stated	259*	
	Females	13	All Races	3,402*	2,015,176
			White Non-Hispanic	2,388*	1,092,744
			Black	83*	325,181
			Hispanic	259*	457,724

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Other Non-Hispanic	36*	139,527
			Not Stated	636*	
		14	All Races	5,261	2,007,313
			White Non-Hispanic	3,668*	1,091,916
			Black	259*	329,733
			Hispanic	113*	451,087
			Other Non-Hispanic	42*	134,577
			Not Stated	1,180*	
		15	All Races	4,726	2,056,858
			White Non-Hispanic	2,829	1,123,337
			Black	137*	339,931
			Hispanic	253*	454,637
			Other Non-Hispanic	171*	138,953
			Not Stated	1,336*	
		16	All Races	4,139	2,086,592
			White Non-Hispanic	2,715	1,145,189
			Black	213*	349,044
			Hispanic	293*	453,753
			Other Non-Hispanic	30*	138,606
			Not Stated	887*	

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
		17	All Races	5,488	2,057,217
			White Non-Hispanic	3,171	1,139,239
			Black	442*	341,216
			Hispanic	271*	441,265
			Other Non-Hispanic	36*	135,497
			Not Stated	1,568*	
		18	All Races	3,757	2,063,045
			White Non-Hispanic	2,500*	1,143,367
			Black	94*	342,926
			Hispanic	234*	435,828
			Other Non-Hispanic	84*	140,924
			Not Stated	844*	
		19	All Races	2,908	2,074,805
			White Non-Hispanic	1,546*	1,153,347
			Black	350*	342,787
			Hispanic	129*	433,157
			Other Non-Hispanic	239*	145,514
			Not Stated	644*	
2017	Both Sexes	13	All Races	4,333	4,155,315

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			White Non-Hispanic	2,357	2,248,593
			Black	143[*]	669,186
			Hispanic	426[*]	951,381
			Other Non-Hispanic	210[*]	286,155
			Not Stated	1,196[*]	
		14	All Races	6,775	4,127,305
			White Non-Hispanic	3,467	2,243,286
			Black	639[*]	663,348
			Hispanic	529[*]	936,337
			Other Non-Hispanic	206[*]	284,334
			Not Stated	1,935[*]	
		15	All Races	5,028	4,114,560
			White Non-Hispanic	2,705	2,240,458
			Black	515[*]	672,648
			Hispanic	536[*]	925,433
			Other Non-Hispanic	130[*]	276,021
			Not Stated	1,143[*]	
		16	All Races	7,235	4,222,691
			White Non-Hispanic	4,333	2,306,213
			Black	445[*]	695,337

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Hispanic	487*	934,496
			Other Non-Hispanic	541*	286,645
			Not Stated	1,429*	
		17	All Races	5,711	4,296,575
			White Non-Hispanic	3,307	2,355,379
			Black	667*	714,819
			Hispanic	452*	937,609
			Other Non-Hispanic	394*	288,768
			Not Stated	890*	
		18	All Races	5,527	4,241,226
			White Non-Hispanic	3,025	2,343,963
			Black	871*	698,785
			Hispanic	201*	911,883
			Other Non-Hispanic	239*	286,595
			Not Stated	1,191*	
		19	All Races	3,852	4,256,608
			White Non-Hispanic	2,350	2,351,880
			Black	693*	702,296
			Hispanic	129*	904,501
			Other Non-Hispanic	0*	297,931

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Not Stated	680[*]	
	Males	13	All Races	640[*]	2,119,558
			White Non-Hispanic	267[*]	1,152,936
			Black	19[*]	339,612
			Hispanic	6[*]	483,611
			Other Non-Hispanic	38[*]	143,399
			Not Stated	310[*]	
		14	All Races	1,168[*]	2,104,753
			White Non-Hispanic	555[*]	1,150,114
			Black	243[*]	336,639
			Hispanic	25[*]	475,393
			Other Non-Hispanic	124[*]	142,607
			Not Stated	221[*]	
		15	All Races	776[*]	2,098,809
			White Non-Hispanic	512[*]	1,148,000
			Black	40[*]	341,351
			Hispanic	117[*]	470,836
			Other Non-Hispanic	13[*]	138,622
			Not Stated	94[*]	
		16	All Races	2,524	2,155,909

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			White Non-Hispanic	1,598*	1,181,944
			Black	133*	353,481
			Hispanic	44*	475,974
			Other Non-Hispanic	360*	144,510
			Not Stated	388*	
		17	All Races	1,600	2,197,871
			White Non-Hispanic	566*	1,208,929
			Black	342*	363,605
			Hispanic	35*	479,613
			Other Non-Hispanic	193*	145,724
			Not Stated	464*	
		18	All Races	1,769	2,169,468
			White Non-Hispanic	1,283*	1,203,165
			Black	137*	355,482
			Hispanic	6*	466,037
			Other Non-Hispanic	0*	144,784
			Not Stated	343*	
		19	All Races	1,281	2,178,434
			White Non-Hispanic	879*	1,207,063
			Black	218*	357,254

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Hispanic	24[*]	463,865
			Other Non-Hispanic	0[*]	150,252
			Not Stated	160[*]	
	Females	13	All Races	3,693	2,035,757
			White Non-Hispanic	2,090	1,095,657
			Black	125[*]	329,574
			Hispanic	420[*]	467,770
			Other Non-Hispanic	172[*]	142,756
			Not Stated	887[*]	
		14	All Races	5,608	2,022,552
			White Non-Hispanic	2,912	1,093,172
			Black	396[*]	326,709
			Hispanic	504[*]	460,944
			Other Non-Hispanic	82[*]	141,727
			Not Stated	1,714[*]	
		15	All Races	4,251	2,015,751
			White Non-Hispanic	2,192	1,092,458
			Black	474[*]	331,297
			Hispanic	419[*]	454,597
			Other Non-Hispanic	117[*]	137,399

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Not Stated	1,049[*]	
		16	All Races	4,711	2,066,782
			White Non-Hispanic	2,735[*]	1,124,269
			Black	312[*]	341,856
			Hispanic	442[*]	458,522
			Other Non-Hispanic	181[*]	142,135
			Not Stated	1,041[*]	
		17	All Races	4,111	2,098,704
			White Non-Hispanic	2,741	1,146,450
			Black	325[*]	351,214
			Hispanic	418[*]	457,996
			Other Non-Hispanic	201[*]	143,044
			Not Stated	426[*]	
		18	All Races	3,758	2,071,758
			White Non-Hispanic	1,742[*]	1,140,798
			Black	733[*]	343,303
			Hispanic	195[*]	445,846
			Other Non-Hispanic	239[*]	141,811
			Not Stated	848[*]	
		19	All Races	2,570	2,078,174

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			White Non-Hispanic	1,471*	1,144,817
			Black	475*	345,042
			Hispanic	105*	440,636
			Other Non-Hispanic	0*	147,679
			Not Stated	520*	

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1 Due to a high percentage of unknowns, rates by Race/Ethnicity are not computed. For more info click here.

*Injury estimate is unstable because of small sample size and/or CV > 30%. Use with caution.

Produced by: National Center for Injury Prevention and Control, CDC
Data Source: NEISS All Injury Program operated by the Consumer Product Safety Commission for numbers of injuries. Bureau of Census for population e

From. IBM SPSS Statistics online version 24.

Table A2. Self-harm cut/pierce nonfatal injuries hospitalized.

Self-harm Cut/Pierce Nonfatal Injuries and Rates per 100,000 2015 - 2017, United States All Races [1], Both Sexes, Ages 13 to 19 Disposition: Hospitalized					
Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
2015	Both Sexes	13	All Races	379*	4,081,296

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			White Non-Hispanic	203*	2,238,635
			Black	0*	666,412
			Hispanic	45*	910,351
			Other Non-Hispanic	101*	265,898
			Not Stated	29*	
		14	All Races	683*	4,183,831
			White Non-Hispanic	502*	2,303,515
			Black	32*	688,309
			Hispanic	15*	917,314
			Other Non-Hispanic	16*	274,693
			Not Stated	118*	
		15	All Races	1,367*	4,249,635
			White Non-Hispanic	1,211*	2,351,085
			Black	52*	707,055
			Hispanic	15*	918,267
			Other Non-Hispanic	24*	273,228
			Not Stated	66*	
		16	All Races	1,001*	4,184,373
			White Non-Hispanic	656*	2,338,108
			Black	49*	690,478

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Hispanic	41*	890,868
			Other Non-Hispanic	157*	264,919
			Not Stated	98*	
		17	All Races	757*	4,192,344
			White Non-Hispanic	586*	2,344,972
			Black	29*	693,734
			Hispanic	8*	882,016
			Other Non-Hispanic	101*	271,622
			Not Stated	33*	
		18	All Races	733*	4,213,143
			White Non-Hispanic	365*	2,362,233
			Black	0*	692,203
			Hispanic	25*	878,431
			Other Non-Hispanic	274*	280,276
			Not Stated	69*	
		19	All Races	1,567*	4,254,939
			White Non-Hispanic	1,127*	2,392,064
			Black	97*	692,960
			Hispanic	189*	879,246
			Other Non-Hispanic	0*	290,669

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Not Stated	154*	
	Males	13	All Races	16*	2,081,376
			White Non-Hispanic	8*	1,147,153
			Black	0*	338,097
			Hispanic	0*	462,535
			Other Non-Hispanic	8*	133,591
		14	All Races	73*	2,135,424
			White Non-Hispanic	49*	1,180,813
			Black	16*	349,898
			Hispanic	0*	466,208
			Other Non-Hispanic	8*	138,505
		15	All Races	171*	2,172,971
			White Non-Hispanic	132*	1,206,881
			Black	0*	359,845
			Hispanic	8*	468,392
			Other Non-Hispanic	8*	137,853
			Not Stated	23*	
		16	All Races	117*	2,139,289
			White Non-Hispanic	31*	1,200,089
			Black	8*	351,435

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Hispanic	24*	453,826
			Other Non-Hispanic	8*	133,939
			Not Stated	46*	
		17	All Races	218*	2,143,845
			White Non-Hispanic	109*	1,203,128
			Black	0*	352,934
			Hispanic	8*	450,759
			Other Non-Hispanic	93*	137,024
			Not Stated	8*	
		18	All Races	539*	2,153,257
			White Non-Hispanic	281*	1,210,243
			Black	0*	351,514
			Hispanic	25*	449,979
			Other Non-Hispanic	189*	141,521
			Not Stated	44*	
		19	All Races	655*	2,180,602
			White Non-Hispanic	397*	1,229,676
			Black	48*	351,865
			Hispanic	189*	451,503
			Other Non-Hispanic	0*	147,558

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Not Stated	21*	
	Females	13	All Races	363*	1,999,920
			White Non-Hispanic	195*	1,091,482
			Black	0*	328,315
			Hispanic	45*	447,816
			Other Non-Hispanic	93*	132,307
			Not Stated	29*	
		14	All Races	610*	2,048,407
			White Non-Hispanic	453*	1,122,702
			Black	16*	338,411
			Hispanic	15*	451,106
			Other Non-Hispanic	8*	136,188
			Not Stated	118*	
		15	All Races	1,197*	2,076,664
			White Non-Hispanic	1,079*	1,144,204
			Black	52*	347,210
			Hispanic	6*	449,875
			Other Non-Hispanic	16*	135,375
			Not Stated	43*	
		16	All Races	884*	2,045,084

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			White Non-Hispanic	625[*]	1,138,019
			Black	41[*]	339,043
			Hispanic	16[*]	437,042
			Other Non-Hispanic	149[*]	130,980
			Not Stated	52[*]	
		17	All Races	539[*]	2,048,499
			White Non-Hispanic	477[*]	1,141,844
			Black	29[*]	340,800
			Hispanic	0[*]	431,257
			Other Non-Hispanic	8[*]	134,598
			Not Stated	25[*]	
		18	All Races	194[*]	2,059,886
			White Non-Hispanic	85[*]	1,151,990
			Black	0[*]	340,689
			Hispanic	0[*]	428,452
			Other Non-Hispanic	85[*]	138,755
			Not Stated	25[*]	
		19	All Races	912[*]	2,074,337
			White Non-Hispanic	731[*]	1,162,388
			Black	49[*]	341,095

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Hispanic	0*	427,743
			Other Non-Hispanic	0*	143,111
			Not Stated	132*	
2016	Both Sexes	13	All Races	549*	4,111,886
			White Non-Hispanic	406*	2,242,443
			Black	18*	660,316
			Hispanic	102*	929,314
			Other Non-Hispanic	12*	279,813
			Not Stated	12*	
		14	All Races	1,045*	4,096,727
			White Non-Hispanic	654*	2,239,510
			Black	224*	669,298
			Hispanic	18*	917,401
			Other Non-Hispanic	12*	270,518
			Not Stated	137*	
		15	All Races	655*	4,201,611
			White Non-Hispanic	474*	2,304,567
			Black	12*	691,581
			Hispanic	24*	925,296

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Other Non-Hispanic	24[*]	280,167
			Not Stated	120[*]	
		16	All Races	348[*]	4,270,670
			White Non-Hispanic	270[*]	2,352,827
			Black	18[*]	710,779
			Hispanic	42[*]	927,373
			Other Non-Hispanic	18[*]	279,691
		17	All Races	606[*]	4,210,248
			White Non-Hispanic	564[*]	2,340,665
			Black	12[*]	694,588
			Hispanic	12[*]	901,031
			Other Non-Hispanic	0[*]	273,964
			Not Stated	18[*]	
		18	All Races	920[*]	4,223,290
			White Non-Hispanic	643[*]	2,348,221
			Black	23[*]	697,896
			Hispanic	90[*]	892,854
			Other Non-Hispanic	0[*]	284,319
			Not Stated	165[*]	
		19	All Races	1,102[*]	4,245,565

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			White Non-Hispanic	805*	2,365,503
			Black	106*	696,253
			Hispanic	84*	889,815
			Other Non-Hispanic	0*	293,994
			Not Stated	106*	
	Males	13	All Races	126*	2,096,710
			White Non-Hispanic	24*	1,149,699
			Black	6*	335,135
			Hispanic	90*	471,590
			Other Non-Hispanic	0*	140,286
			Not Stated	6*	
		14	All Races	287*	2,089,414
			White Non-Hispanic	204*	1,147,594
			Black	6*	339,565
			Hispanic	0*	466,314
			Other Non-Hispanic	0*	135,941
			Not Stated	78*	
		15	All Races	36*	2,144,753
			White Non-Hispanic	24*	1,181,230
			Black	6*	351,650

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Hispanic	0*	470,659
			Other Non-Hispanic	0*	141,214
			Not Stated	6*	
		16	All Races	48*	2,184,078
			White Non-Hispanic	36*	1,207,638
			Black	0*	361,735
			Hispanic	12*	473,620
			Other Non-Hispanic	0*	141,085
		17	All Races	140*	2,153,031
			White Non-Hispanic	134*	1,201,426
			Black	0*	353,372
			Hispanic	0*	459,766
			Other Non-Hispanic	0*	138,467
			Not Stated	6*	
		18	All Races	277*	2,160,245
			White Non-Hispanic	29*	1,204,854
			Black	0*	354,970
			Hispanic	84*	457,026
			Other Non-Hispanic	0*	143,395
			Not Stated	165*	

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
		19	All Races	614*	2,170,760
			White Non-Hispanic	508*	1,212,156
			Black	84*	353,466
			Hispanic	0*	456,658
			Other Non-Hispanic	0*	148,480
			Not Stated	23*	
	Females	13	All Races	424*	2,015,176
			White Non-Hispanic	381*	1,092,744
			Black	12*	325,181
			Hispanic	12*	457,724
			Other Non-Hispanic	12*	139,527
			Not Stated	6*	
		14	All Races	757*	2,007,313
			White Non-Hispanic	450*	1,091,916
			Black	218*	329,733
			Hispanic	18*	451,087
			Other Non-Hispanic	12*	134,577
			Not Stated	59*	
		15	All Races	619*	2,056,858
			White Non-Hispanic	450*	1,123,337

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Black	6*	339,931
			Hispanic	24*	454,637
			Other Non-Hispanic	24*	138,953
			Not Stated	114*	
		16	All Races	300*	2,086,592
			White Non-Hispanic	234*	1,145,189
			Black	18*	349,044
			Hispanic	30*	453,753
			Other Non-Hispanic	18*	138,606
		17	All Races	465*	2,057,217
			White Non-Hispanic	429*	1,139,239
			Black	12*	341,216
			Hispanic	12*	441,265
			Other Non-Hispanic	0*	135,497
			Not Stated	12*	
		18	All Races	643*	2,063,045
			White Non-Hispanic	614*	1,143,367
			Black	23*	342,926
			Hispanic	6*	435,828
			Other Non-Hispanic	0*	140,924

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
		19	All Races	488*	2,074,805
			White Non-Hispanic	297*	1,153,347
			Black	23*	342,787
			Hispanic	84*	433,157
			Other Non-Hispanic	0*	145,514
			Not Stated	84*	
2017	Both Sexes	13	All Races	576*	4,155,315
			White Non-Hispanic	251*	2,248,593
			Black	19*	669,186
			Hispanic	140*	951,381
			Other Non-Hispanic	134*	286,155
			Not Stated	32*	
		14	All Races	676*	4,127,305
			White Non-Hispanic	341*	2,243,286
			Black	38*	663,348
			Hispanic	25*	936,337
			Other Non-Hispanic	31*	284,334
			Not Stated	241*	
		15	All Races	776*	4,114,560

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			White Non-Hispanic	568[*]	2,240,458
			Black	51[*]	672,648
			Hispanic	76[*]	925,433
			Other Non-Hispanic	19[*]	276,021
			Not Stated	62[*]	
		16	All Races	555[*]	4,222,691
			White Non-Hispanic	238[*]	2,306,213
			Black	25[*]	695,337
			Hispanic	25[*]	934,496
			Other Non-Hispanic	228[*]	286,645
			Not Stated	38[*]	
		17	All Races	840[*]	4,296,575
			White Non-Hispanic	377[*]	2,355,379
			Black	6[*]	714,819
			Hispanic	251[*]	937,609
			Other Non-Hispanic	112[*]	288,768
			Not Stated	94[*]	
		18	All Races	1,436[*]	4,241,226
			White Non-Hispanic	992[*]	2,343,963
			Black	199[*]	698,785

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Hispanic	94[*]	911,883
			Other Non-Hispanic	6[*]	286,595
			Not Stated	145[*]	
		19	All Races	506[*]	4,256,608
			White Non-Hispanic	240[*]	2,351,880
			Black	135[*]	702,296
			Hispanic	105[*]	904,501
			Other Non-Hispanic	0[*]	297,931
			Not Stated	26[*]	
	Males	13	All Races	25[*]	2,119,558
			White Non-Hispanic	19[*]	1,152,936
			Black	0[*]	339,612
			Hispanic	0[*]	483,611
			Other Non-Hispanic	6[*]	143,399
		14	All Races	110[*]	2,104,753
			White Non-Hispanic	31[*]	1,150,114
			Black	13[*]	336,639
			Hispanic	6[*]	475,393
			Other Non-Hispanic	6[*]	142,607
			Not Stated	53[*]	

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
		15	All Races	56[*]	2,098,809
			White Non-Hispanic	31[*]	1,148,000
			Black	6[*]	341,351
			Hispanic	6[*]	470,836
			Other Non-Hispanic	6[*]	138,622
			Not Stated	6[*]	
		16	All Races	163[*]	2,155,909
			White Non-Hispanic	31[*]	1,181,944
			Black	13[*]	353,481
			Hispanic	6[*]	475,974
			Other Non-Hispanic	100[*]	144,510
			Not Stated	13[*]	
		17	All Races	423[*]	2,197,871
			White Non-Hispanic	218[*]	1,208,929
			Black	0[*]	363,605
			Hispanic	13[*]	479,613
			Other Non-Hispanic	105[*]	145,724
			Not Stated	88[*]	
		18	All Races	541[*]	2,169,468
			White Non-Hispanic	511[*]	1,203,165

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Black	0*	355,482
			Hispanic	6*	466,037
			Other Non-Hispanic	0*	144,784
			Not Stated	24*	
		19	All Races	209*	2,178,434
			White Non-Hispanic	136*	1,207,063
			Black	48*	357,254
			Hispanic	0*	463,865
			Other Non-Hispanic	0*	150,252
			Not Stated	26*	
	Females	13	All Races	551*	2,035,757
			White Non-Hispanic	232*	1,095,657
			Black	19*	329,574
			Hispanic	140*	467,770
			Other Non-Hispanic	128*	142,756
			Not Stated	32*	
		14	All Races	566*	2,022,552
			White Non-Hispanic	309*	1,093,172
			Black	25*	326,709
			Hispanic	19*	460,944

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
			Other Non-Hispanic	25*	141,727
			Not Stated	188*	
		15	All Races	719*	2,015,751
			White Non-Hispanic	537*	1,092,458
			Black	44*	331,297
			Hispanic	70*	454,597
			Other Non-Hispanic	13*	137,399
			Not Stated	56*	
		16	All Races	392*	2,066,782
			White Non-Hispanic	207*	1,124,269
			Black	13*	341,856
			Hispanic	19*	458,522
			Other Non-Hispanic	128*	142,135
			Not Stated	26*	
		17	All Races	417*	2,098,704
			White Non-Hispanic	159*	1,146,450
			Black	6*	351,214
			Hispanic	239*	457,996
			Other Non-Hispanic	6*	143,044
			Not Stated	6*	

Year	Sex	Age (in Years)	Race Ethnicity	Number of injuries	Population
		18	All Races	896*	2,071,758
			White Non-Hispanic	481*	1,140,798
			Black	199*	343,303
			Hispanic	88*	445,846
			Other Non-Hispanic	6*	141,811
			Not Stated	121*	
		19	All Races	297*	2,078,174
			White Non-Hispanic	105*	1,144,817
			Black	88*	345,042
			Hispanic	105*	440,636
			Other Non-Hispanic	0*	147,679

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*Injury estimate is unstable because of small sample size and/or CV > 30%. Use with caution.

Produced by: National Center for Injury Prevention and Control, CDC
Data Source: NEISS All Injury Program operated by the Consumer Product Safety Commission for numbers of injuries. Bureau of Census for population estimates.

From. IBM SPSS Statistics online version 24.

Appendix B: Descriptive Statistic Tables

Table B1.

Descriptive statistics for gender.

.

Descriptive Statistics						
gender		N	Minimum	Maximum	Mean	Std. Deviation
Females	age	86463	13	19	15.76	1.848
	Valid N (listwise)	86463				
Males	age	27882	13	19	16.56	1.769
	Valid N (listwise)	27882				

Table B2.

Frequency for gender.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Females	86463	75.6	75.6	75.6
	Males	27882	24.4	24.4	100.0
	Total	114345	100.0	100.0	

Table B3.

Descriptive statistics for race.

Statistics			
Black	N	Valid	8955
		Missing	0
	Mean		16.36
	Std. Error of Mean		.021
	Median		17.00
	Mode		17

	Std. Deviation		1.944
	Variance		3.778
	Skewness		-.193
	Std. Error of Skewness		.026
	Kurtosis		-1.180
	Std. Error of Kurtosis		.052
	Range		6
	Minimum		13
	Maximum		19
	Sum		146539
Hispanic	N	Valid	7395
		Missing	0
	Mean		15.73
	Std. Error of Mean		.021
	Median		16.00
	Mode		16
	Std. Deviation		1.795
	Variance		3.221
	Skewness		.171
	Std. Error of Skewness		.028
	Kurtosis		-.906
	Std. Error of Kurtosis		.057
	Range		6
	Minimum		13
	Maximum		19
	Sum		116342
Not Stated	N	Valid	21733
		Missing	0
	Mean		15.83
	Std. Error of Mean		.013
	Median		16.00
	Mode		14
	Std. Deviation		1.905
	Variance		3.629
	Skewness		.114
	Std. Error of Skewness		.017
	Kurtosis		-1.159
	Std. Error of Kurtosis		.033

	Range		6
	Minimum		13
	Maximum		19
	Sum		344082
Other Non-Hispanic	N	Valid	3518
		Missing	0
	Mean		16.12
	Std. Error of Mean		.030
	Median		16.00
	Mode		16
	Std. Deviation		1.781
	Variance		3.172
	Skewness		-.197
	Std. Error of Skewness		.041
	Kurtosis		-.927
	Std. Error of Kurtosis		.083
	Range		6
	Minimum		13
	Maximum		19
	Sum		56698
White	N	Valid	72247
		Missing	0
	Mean		15.95
	Std. Error of Mean		.007
	Median		16.00
	Mode		15
	Std. Deviation		1.837
	Variance		3.376
	Skewness		.133
	Std. Error of Skewness		.009
	Kurtosis		-1.049
	Std. Error of Kurtosis		.018
	Range		6
	Minimum		13
	Maximum		19
	Sum		1152699

Table B4.

Frequency for race.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Black	8955	7.8	7.8	7.8
	Hispanic	7395	6.5	6.5	14.3
	Not Stated	21733	19.0	19.0	33.5
	Other NH	3518	3.1	3.1	36.6
	Other White-NH	285	.2	.2	36.8
	White	72247	63.2	63.2	100.0
	Total	114345	100.0	100.0	

Note: Other NH (Non-Hispanic). Other NS (Not Stated)

Table B5.

Descriptive statistics for self-harm.

	N	Minimum	Maximum	Mean	Std. Deviation
cut	114345	0	1	1.00	.010
Valid N (listwise)	114345				

Table B6.

Descriptive statistics for self-harm and gender.

		cut	gender
N	Valid	114345	114345
	Missing	0	0
Mean		1.00	
Median		1.00	
Mode		1	
Std. Deviation		.010	
Variance		.000	

Skewness		-101.942
Std. Error of Skewness		.007
Kurtosis		10390.454
Std. Error of Kurtosis		.014
Range		1
Minimum		0
Maximum		1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no cut	11	.0	.0	.0
	yes cut	114334	100.0	100.0	100.0
	Total	114345	100.0	100.0	

Table B7.

Descriptive statistics for age.

	N	Minimum	Maximum	Mean	Std. Deviation
age	114345	13	19	15.95	1.861
Valid N (listwise)	114345				

13	N	Valid	11787
		Missing	0
	Mean		1.00
	Std. Error of Mean		.000
	Median		1.00
	Mode		1
	Std. Deviation		.009
	Variance		.000
	Skewness		-108.568
	Std. Error of Skewness		.023

	Kurtosis		11787.000
	Std. Error of Kurtosis		.045
	Range		1
	Minimum		0
	Maximum		1
	Sum		11786
14	N	Valid	18616
		Missing	0
	Mean		1.00
	Std. Error of Mean		.000
	Median		1.00
	Mode		1
	Std. Deviation		.010
	Variance		.000
	Skewness		-96.470
	Std. Error of Skewness		.018
	Kurtosis		9305.500
	Std. Error of Kurtosis		.036
	Range		1
	Minimum		0
	Maximum		1
	Sum		18614
15	N	Valid	19562
		Missing	0
	Mean		1.00
	Std. Error of Mean		.000
	Median		1.00
	Mode		1
	Std. Deviation		.000
	Variance		.000
	Std. Error of Skewness		.018
	Std. Error of Kurtosis		.035
	Range		0
	Minimum		1
	Maximum		1
	Sum		19562
16	N	Valid	18806
		Missing	0

	Mean		1.00
	Std. Error of Mean		.000
	Median		1.00
	Mode		1
	Std. Deviation		.007
	Variance		.000
	Skewness		-137.135
	Std. Error of Skewness		.018
	Kurtosis		18806.000
	Std. Error of Kurtosis		.036
	Range		1
	Minimum		0
	Maximum		1
	Sum		18805
17	N	Valid	18329
		Missing	0
	Mean		1.00
	Std. Error of Mean		.000
	Median		1.00
	Mode		1
	Std. Deviation		.000
	Variance		.000
	Std. Error of Skewness		.018
	Std. Error of Kurtosis		.036
	Range		0
	Minimum		1
	Maximum		1
	Sum		18329
18	N	Valid	13468
		Missing	0
	Mean		1.00
	Std. Error of Mean		.000
	Median		1.00
	Mode		1
	Std. Deviation		.015
	Variance		.000
	Skewness		-66.988
	Std. Error of Skewness		.021

	Kurtosis		4485.999
	Std. Error of Kurtosis		.042
	Range		1
	Minimum		0
	Maximum		1
	Sum		13465
19	N	Valid	13777
		Missing	0
	Mean		1.00
	Std. Error of Mean		.000
	Median		1.00
	Mode		1
	Std. Deviation		.017
	Variance		.000
	Skewness		-58.669
	Std. Error of Skewness		.021
	Kurtosis		3440.499
	Std. Error of Kurtosis		.042
	Range		1
	Minimum		0
	Maximum		1
	Sum		13773

Table B8.

Frequency for age.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	13	11787	10.3	10.3	10.3
	14	18616	16.3	16.3	26.6
	15	19562	17.1	17.1	43.7
	16	18806	16.4	16.4	60.1
	17	18329	16.0	16.0	76.2
	18	13468	11.8	11.8	88.0
	19	13777	12.0	12.0	100.0
	Total	114345	100.0	100.0	

Table B9.

Descriptive statistics for gender and hospitalized.

Statistics

Females	N	Valid	86450
		Missing	13
	Mean		.14
	Std. Error of Mean		.001
	Median		.00
	Mode		0
	Std. Deviation		.349
	Variance		.122
	Skewness		2.053
	Std. Error of Skewness		.008
	Kurtosis		2.215
	Std. Error of Kurtosis		.017
	Range		1
	Minimum		0
	Maximum		1
	Sum		12264
Males	N	Valid	27864
		Missing	18
	Mean		.18
	Std. Error of Mean		.002
	Median		.00
	Mode		0
	Std. Deviation		.382
	Variance		.146
	Skewness		1.687
	Std. Error of Skewness		.015
	Kurtosis		.844
	Std. Error of Kurtosis		.029
	Range		1
	Minimum		0
	Maximum		1

Sum	4951

Appendix C: Descriptive Statistic Figures

Figure C1. Bar chart for gender.
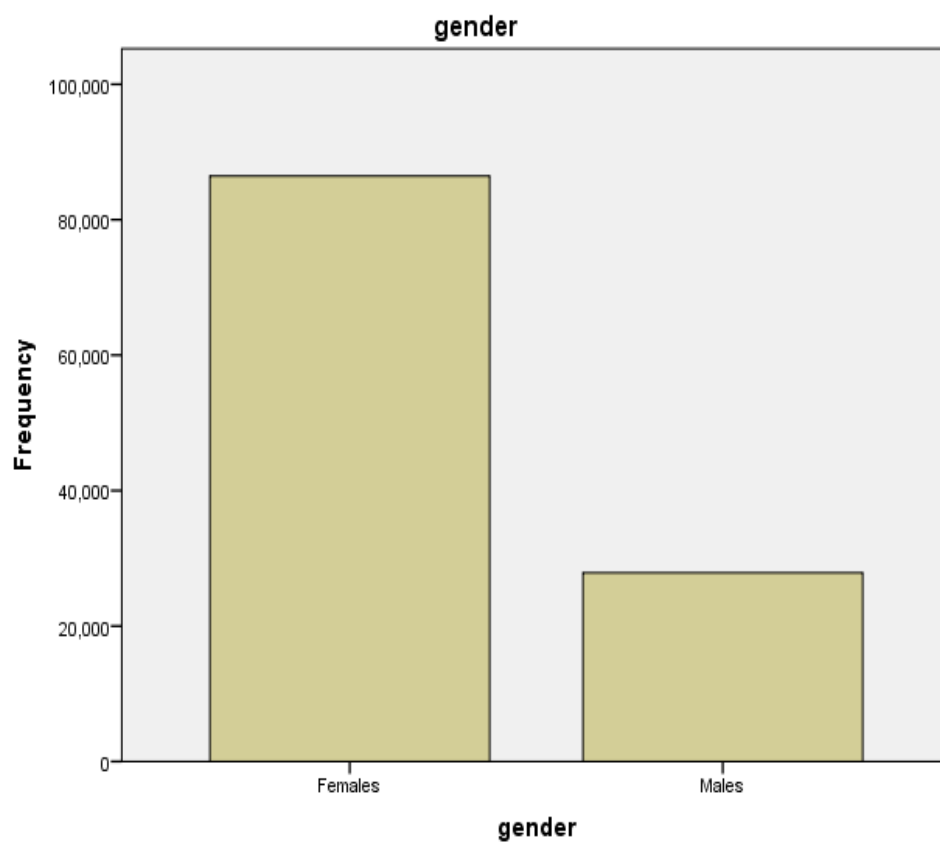
Figure C2. Bar chart for race.
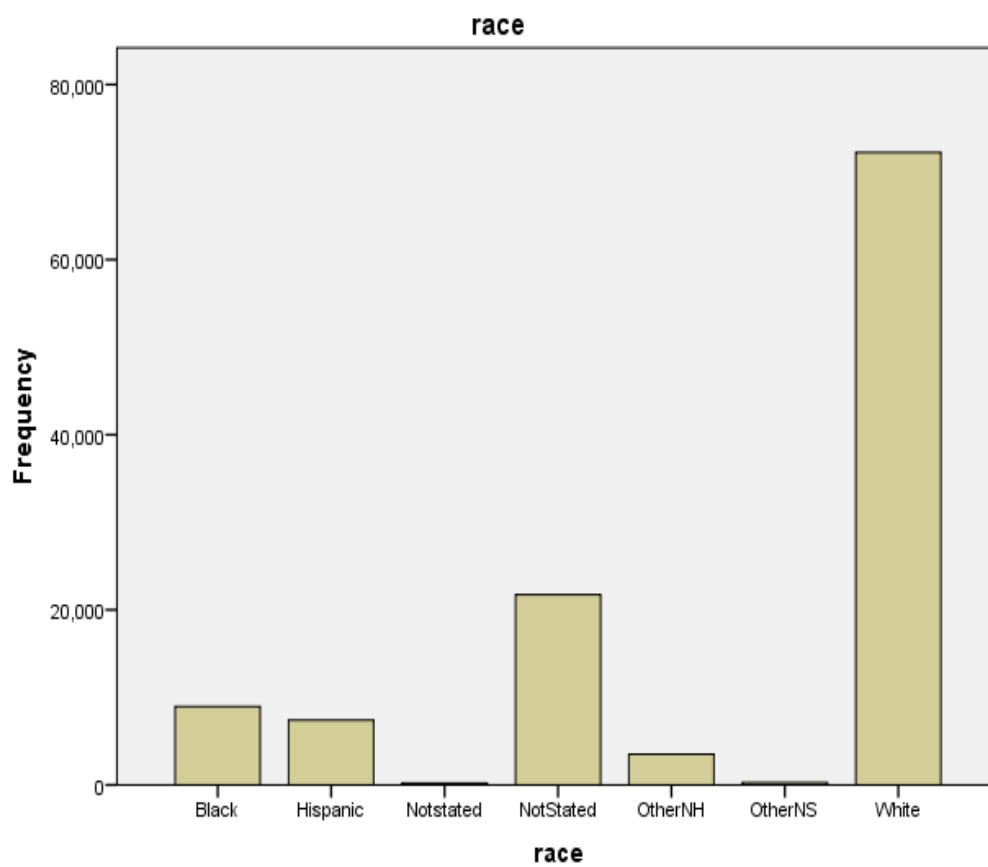
Figure C3. Histogram for self-harm.
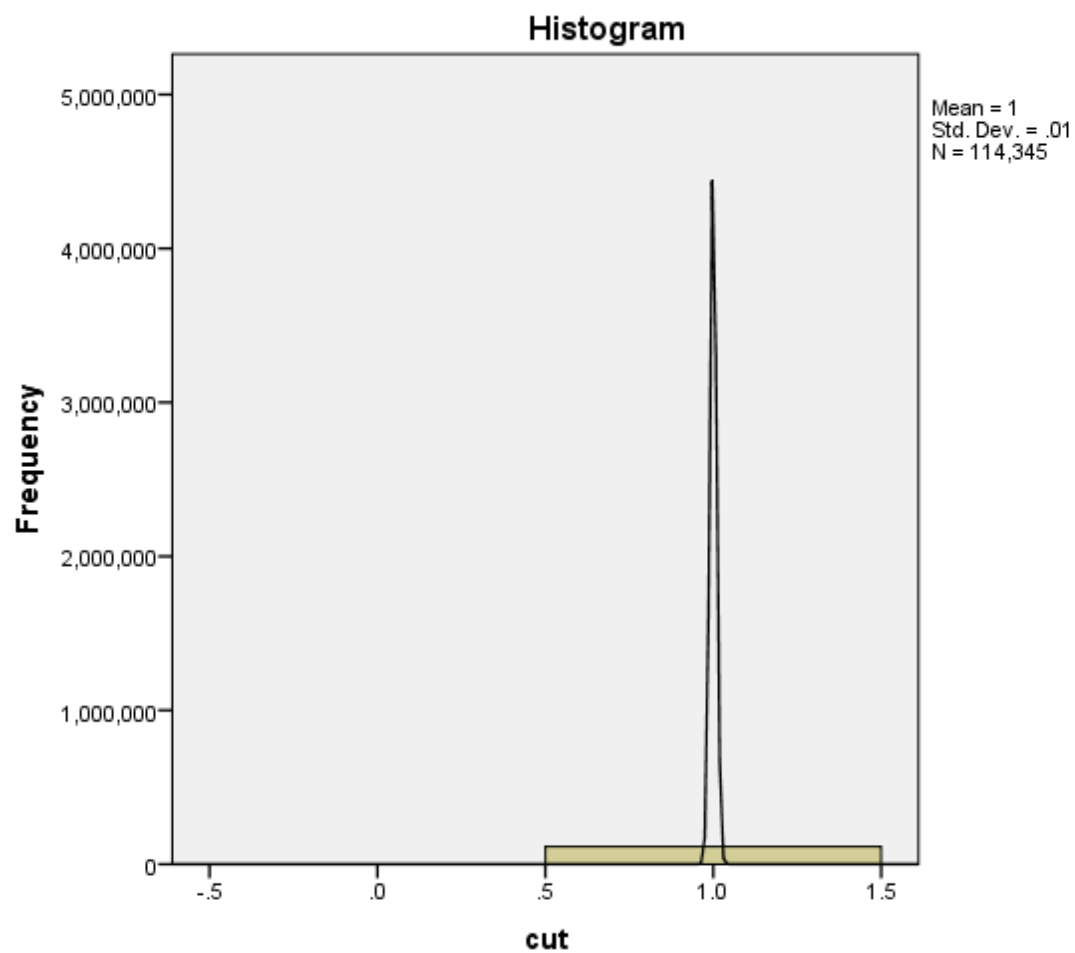
Figure C4. Histogram for self-harm female.
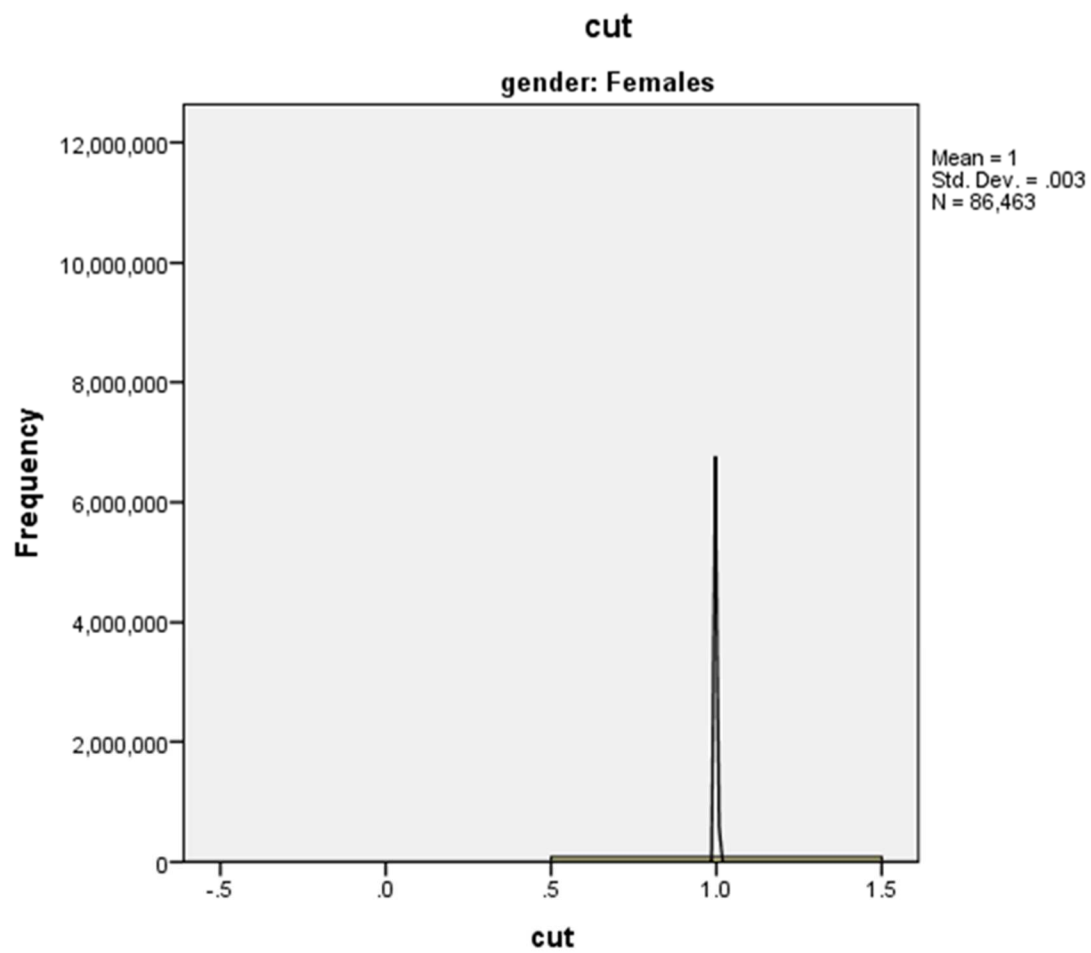
Figure C5. Histogram for self-harm male.
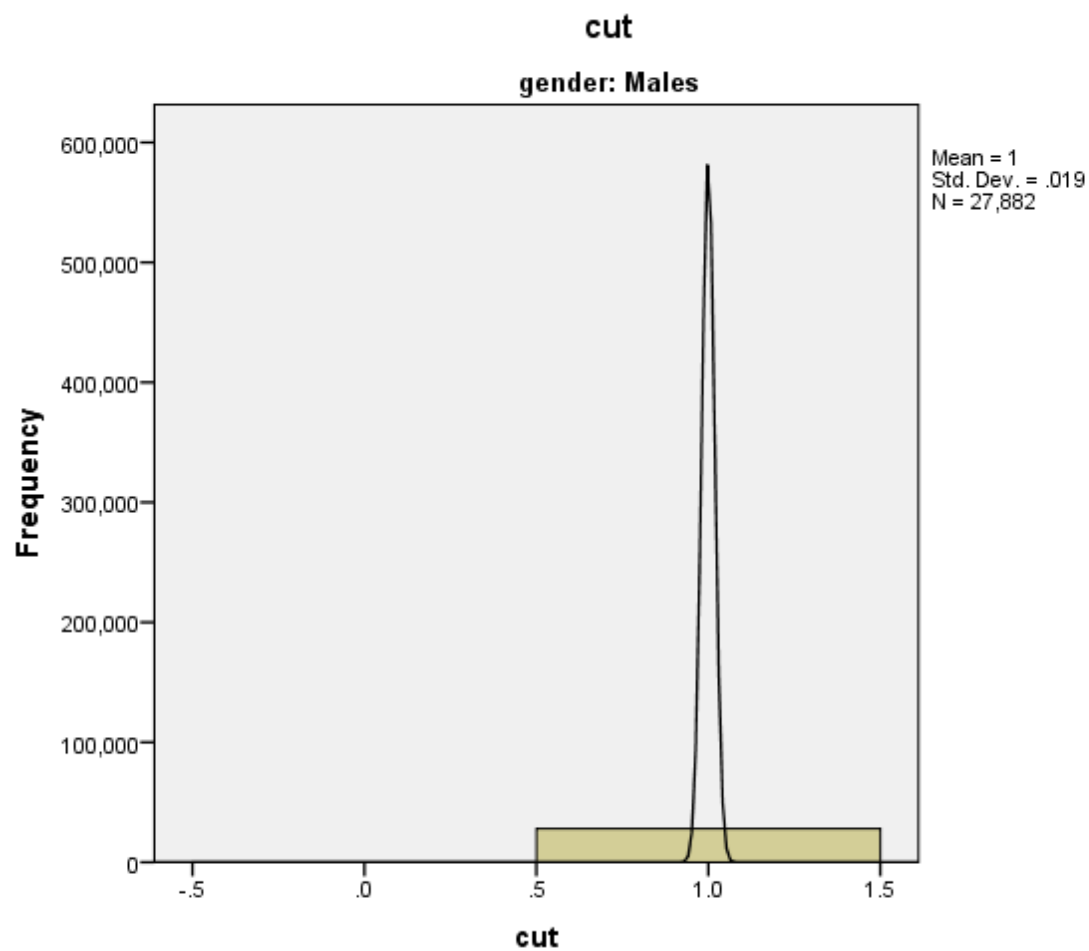
Figure C6. Histogram for age.
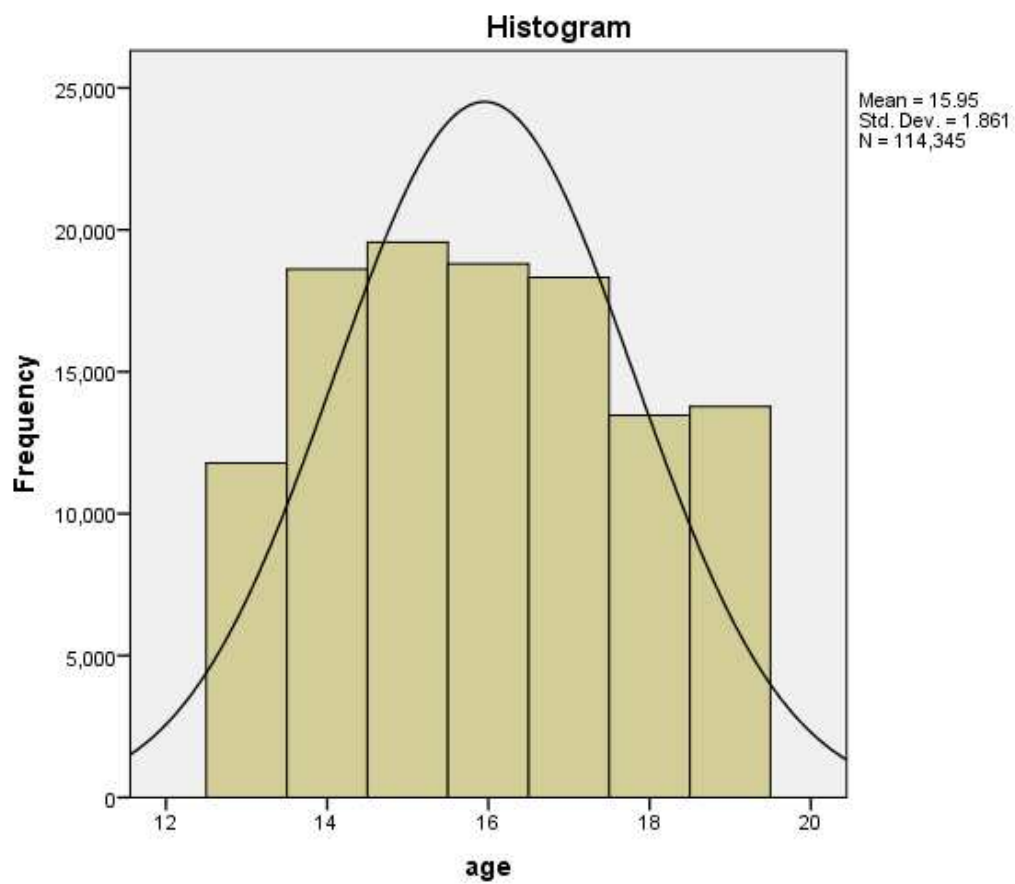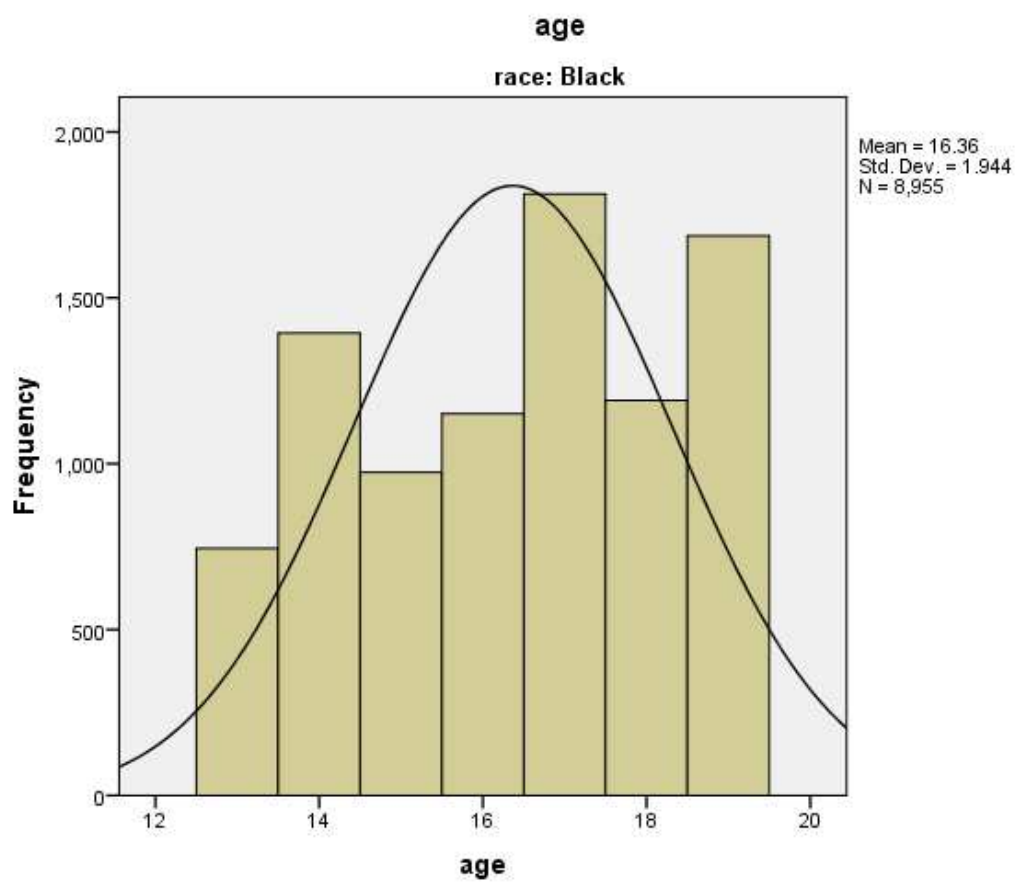
Figure C7. Histogram for age and black race.
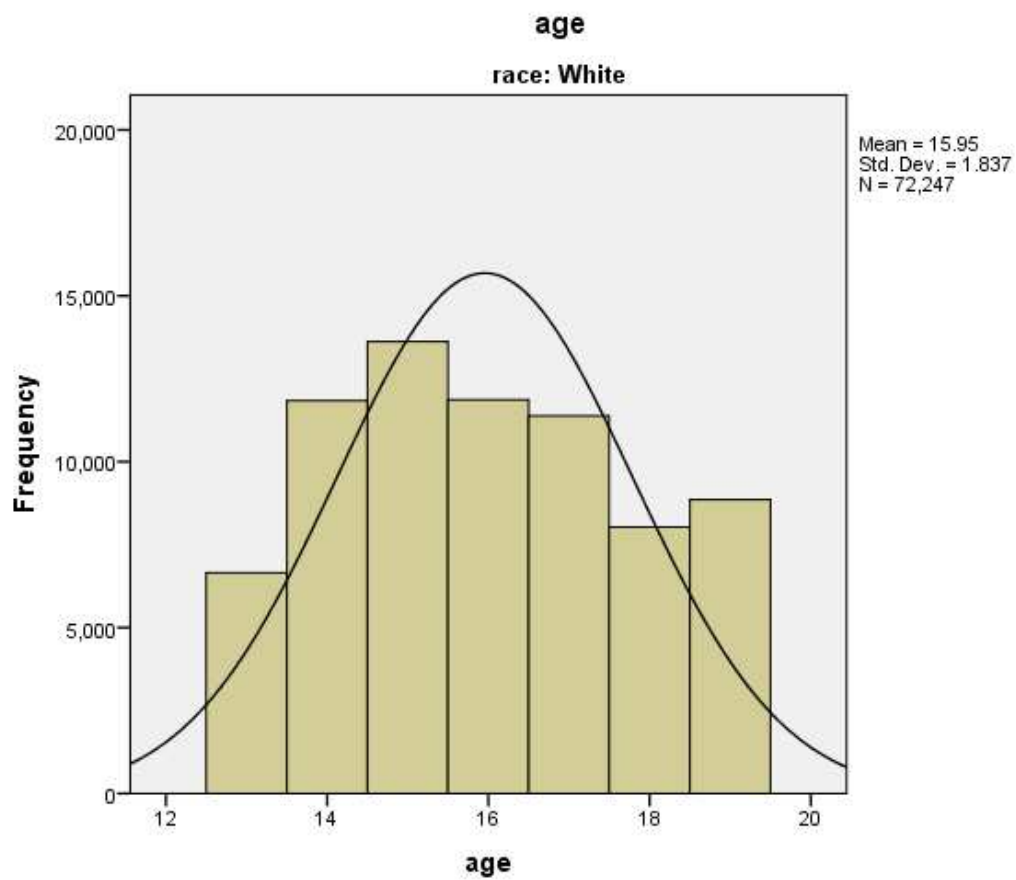
Figure C8. Histogram for age and white race.
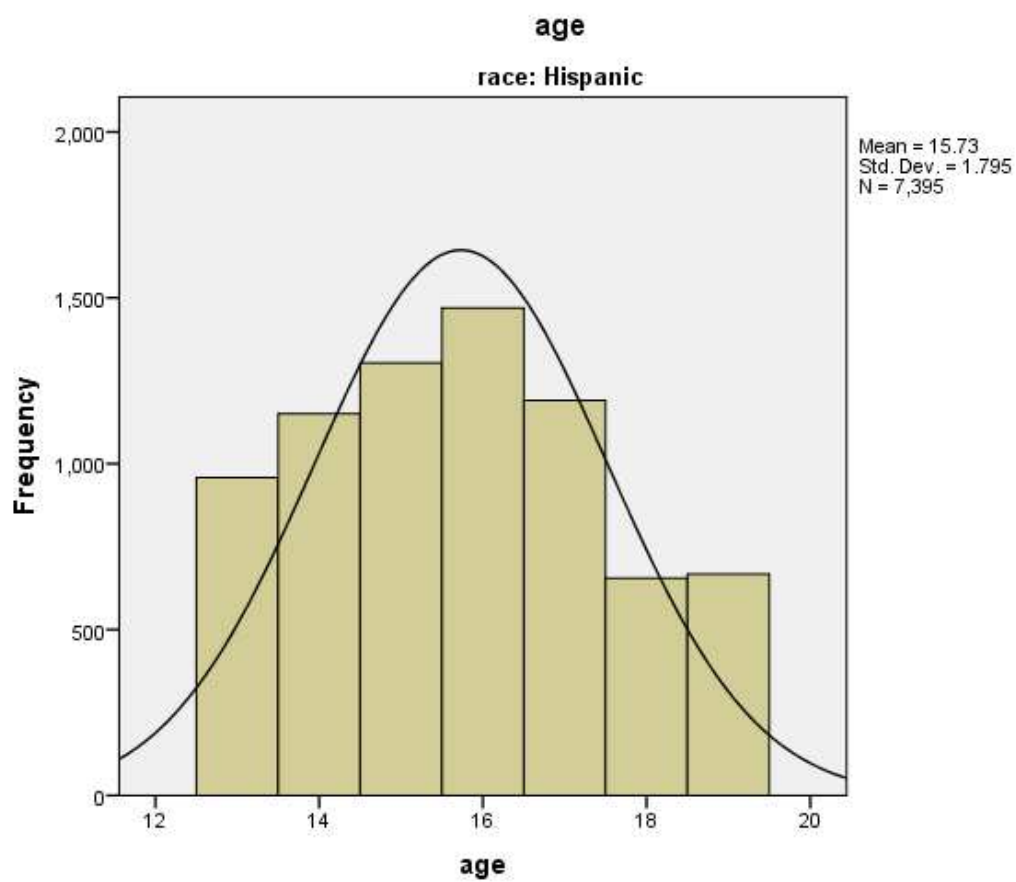
Figure C9. Histogram for age and hispanic race.
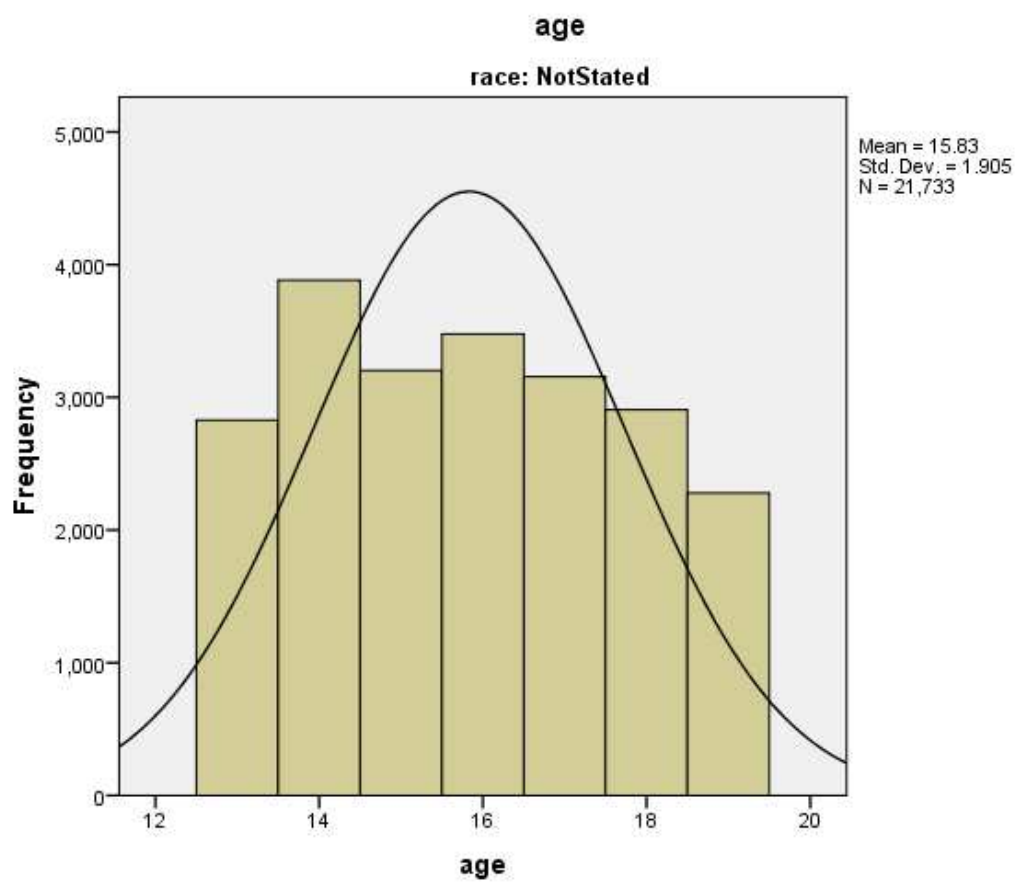
Figure C10. Histogram for age and not stated.

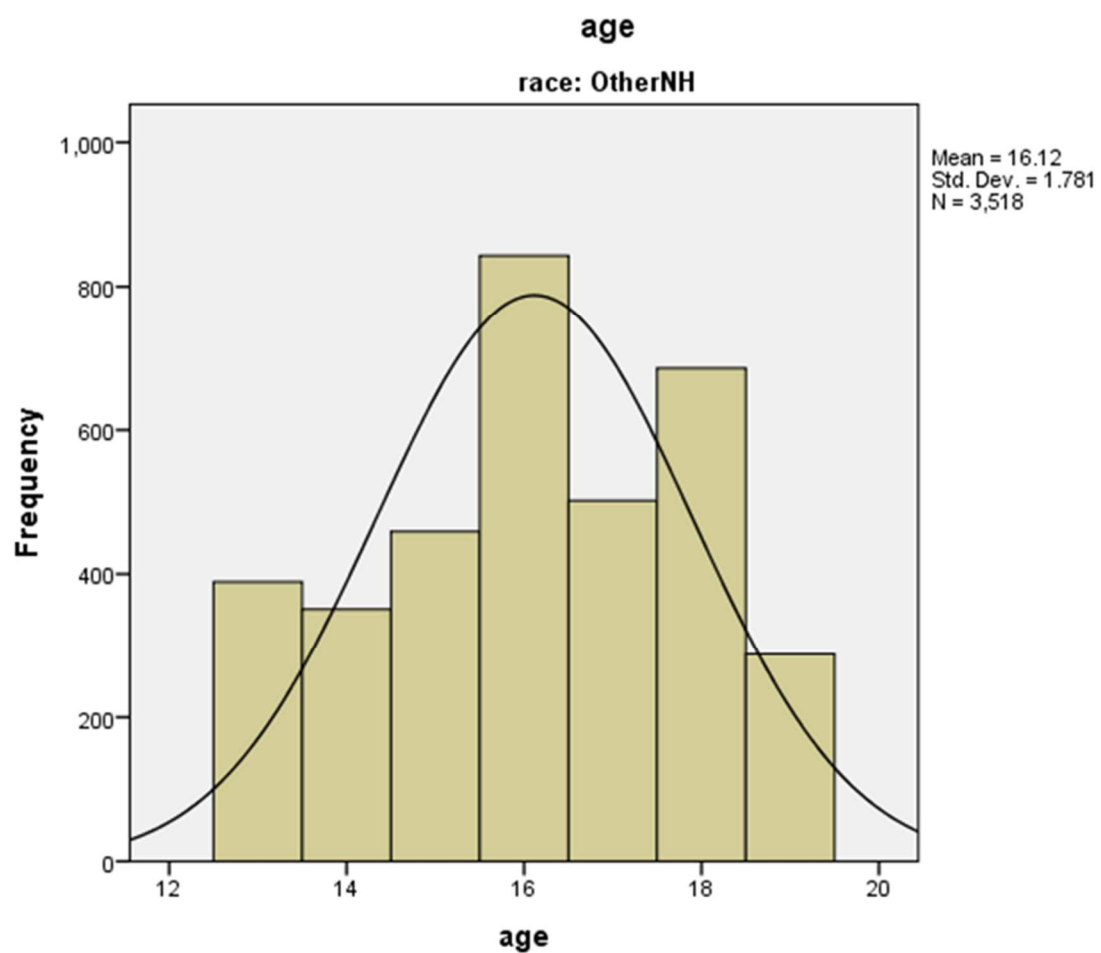*Figure C11..* Histogram for age and otherNH.
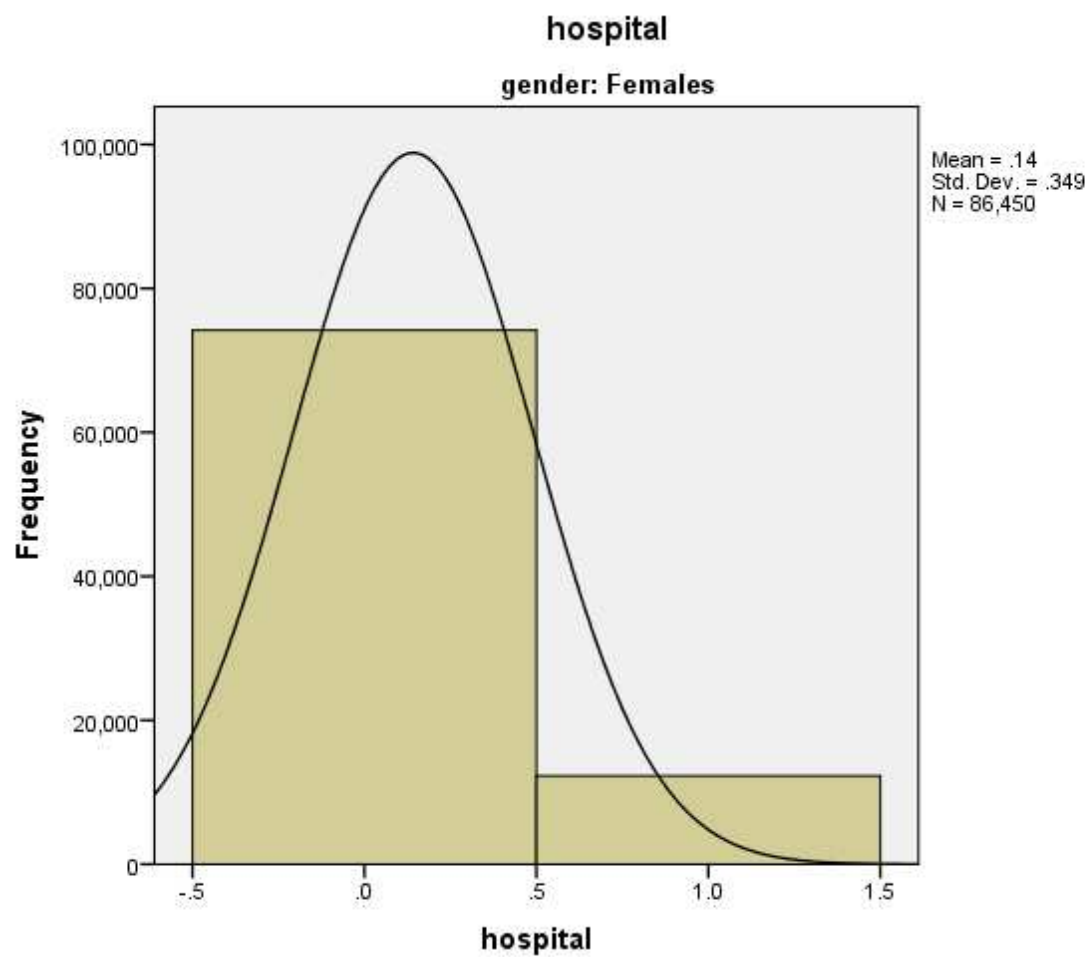
Figure C12. Histogram for female hospital admission.

Figure C13. Histogram for males and being hospitalized.

hospital

gender: Males

Mean = .18
Std. Dev. = .382
N = 27,864