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The Effects of Ethnicity and Socioeconomic Status on Anxiety Prevalence and Treatment

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Abstract

With the growing rise of anxiety disorders, psychosocial factors including ethnicity and socioeconomic status may be contributing to diagnostic disparities among different groups. The primary explanation for this trend has been income and ethnic differences. While previous research has followed the trends of income levels and mental health disorders, few studies have delved further into the influential nature of psychosocial factors as it relates specifically to anxiety. Rather, studies have focused on how psychosocial factors such as SES, mitigate mental health development overall. Data was collected to determine what role ethnicity, income, and parental marriage, play in the development of anxiety, frequency of mental health visits, and equal access to healthcare. Students were asked to take a brief questionnaire assessing demographics, anxiety, and perceived stress levels. Higher income was associated with more anxiety, $r = 0.243$, $p = 0.003$, whereas there was no significant difference between ethnicity and symptom improvement, $X^2(3) = 1.6$, $p = 0.659$. There was a significantly positive relationship between SES and treatment-seeking, $r = 0.404$, $p = 0.022$, while there was no relationship between ethnicity, parental marital status, and stress and anxiety, $t(42) = 5.5$, $p = 0.23$. These findings illustrate the need for equal education opportunities as well as equal access to healthcare. While there have been numerous studies assessing the impacts of ethnicity and SES on disease and illness, few studies have evaluated its effect specifically on anxiety development. Future researchers should focus on anxiety as it relates to socioeconomic differences.

The Effects of Ethnicity and Socioeconomic Status on Anxiety Prevalence and Treatment

Regardless of our background, most individuals experience anxiety at least once during their lives or know of people who have experienced it. Although there are methods in place to help alleviate the symptoms of anxiety, there is still great room for improvement in the American healthcare system. A large disparity has continued to persist in the care and treatment of this disorder depending on socioeconomic status and ethnicity. According to the Fundamental Cause Theory, health disparities continue to persist depending on socioeconomic status, suggesting that low socioeconomic groups are more likely to experience worse health outcomes and get treated less frequently compared to high socioeconomic groups (Phelan, Link, & Tehranifar, 2010). As there are severe health disparities in healthcare, the purpose of this study is to determine the role ethnicity and socioeconomic status plays on developing and treating anxiety.

Fundamental Cause Theory

As health disparities continued to persist in low SES areas, the Fundamental Cause Theory was created to shed light on the need for significant change in the prevalence, diagnosis, and treatment of healthcare among individuals. According to Chang and Lauderdale (2009), the Fundamental Cause Theory suggests that health disparities continue to persist despite changes in diseases, advances in medicine, and increase in knowledge. The theory attributes this continuation of diseases to social factors such as socioeconomic status, race/ ethnicity, gender, and even sexual orientation. Hatzenbuehler, Phelan, and Link (2013) posited four factors that help better understand the fundamental causes of disease. A fundamental social cause will encourage multiple disease outcomes, it will involve disease outcomes depending on different risk factors, access to resources (e.g., money, shelter, food), and these disparaging relationships

are consistently reproduced overtime through the replacement of intervening mechanisms (2013).

In a study looking at the fundamental causes of mental health inequalities, Khan, Ilcisin, and Saxton (2017), assessed discrimination in relation to negative mental health outcomes. They also explored if discrimination was a fundamental cause of health inequalities as it pertains to the four core fundamental cause criteria. From their study, they found that groups who were stigmatized, such as low socioeconomic status and ethnic groups, were more likely to experience mental health issues. Similar to other findings, Hispanic/Latino groups were significantly more likely to have higher stress scores and lower physiological well-being compared to non-Hispanic/White groups. When assessing anxiety, it was found that African Americans were at a higher risk of experiencing anxiety levels related to discrimination, which suggests that African Americans are also at a higher risk of being stigmatized (2017). Their work demonstrates how prevalent anxiety and other mental health disorders are among low socioeconomic and ethnic groups. This also begins to explore the core fundamental causes of these findings.

Chang and Lauderdale (2009) further examined fundamental causes in physical health including socioeconomic disparities in people with cholesterol. In contrast, there was an inverse relationship between those who developed high cholesterol and socioeconomic status. For instance, in the late 1960s-70s, those with higher levels of income were more likely to afford fatty foods containing higher cholesterol, which resulted in high SES individuals having higher levels of cholesterol. However, with the use of statin; a new drug developed to combat cholesterol, those with greater income have now disproportionately benefited from the medication (2009). Their research illustrates how overtime, health inequalities continue to persist rather than make substantial change towards improvement.

When looking at intervening mechanisms that improve health, Polonijo and Carpio (2013) examine the continuing social disparities in survival rates and health for the HPV vaccine. They aim to discover whether SES and racial disparities are present for different aspects of vaccination including access to knowledge regarding the disease and the vaccine, completion of the vaccination, and how health professionals address the vaccine to their patients. Their research findings suggest that parental knowledge is a strong predictor for whether their child will be vaccinated for the HPV disease and minority, low SES parents will be less likely to have any prior knowledge regarding the disease. Additionally, it was found that low SES/ minority groups were less likely to have a doctor recommend getting the vaccine and therefore were less likely to get it, putting them at a higher risk for contracting and spreading the disease (2013). Their work is extremely important for the purpose of this study, as it highlights the severe racial disparities in medical treatment among healthcare professionals, which continues to further spread the gap in health.

During the HIV/AIDS epidemic, there was severe inequalities in those who contracted the disease and the survival rates. Rubin, Cohen, and Link (2010), aimed to examine the inequalities between SES and race in HIV/AIDS mortality rates prior to and after HAART treatment for the disease. After analyzing individuals infected and their progress with the HAART treatment, they found that the decline in mortality rates was not equally distributed between different population groups suggesting a racial and SES disparity in treatment outcomes. After HAART treatments, White individuals from high SES areas, showed a greater decline in mortality rates compared to those of Black/Hispanic individuals from low SES areas (2010). This study serves as evidence for the fundamental cause theory as this treatment, aimed

at prolonging the life of an HIV/AIDS patient was actually shown to exacerbate inequalities in health. Good.

Income Levels Affecting Mental Health Disorders

Socioeconomic status has been measured through an individual's own education, income levels, and occupation (Baker, 2014). While low socioeconomic status has been shown to be a strong predictor in developing mental health, McLaughlin, Costello, Leblanc, Sampson, and Kessler (2012), further evaluated this relationship by determining which stressors are the biggest influencers for mental health development. Adolescents were assessed to look at the relationship between absolute SES (e.g., family income, educational background), relative SES, and subjective social status (e.g., beliefs regarding social status) with previous mental illness. Their results showed that subjective social status was the most significant predictor of mental illness development. Having lower subjective status was found to be related to higher likelihoods of mental disorders including anxiety. Parental income and education were assessed, where they found that parental income was actually unassociated with mental illness, while parental education was highly associated with mental illness (2012). While these results showed that parental income level plays a smaller role in their children developing mental illness compared to other factors, it can be posited that individual income levels predict anxiety related illness, rather than parental income (Ribeiro et al., 2017). This relates to the current study by suggesting different variables that should be evaluated further to determine, which could affect the likelihood of anxiety development the most.

Associations between income disparities and developing mental health have been found, however, Layte (2012), delves further into this association by examining three prominent hypotheses: Status anxiety, Social capital, and Neo-materialist explanations. The Status Anxiety

hypothesis suggests that disadvantage and inequality negatively impact a person's health because of their disproportionate views of their place in society. The Social Capital hypothesis suggests that higher levels of income disparities will reduce socialization between groups from different income and SES, lessening trust and decreasing mental and physical health. The final hypothesis tested, Neo-Materialist, suggests that major income inequality societies will have a higher prevalence of low-income individuals that is related to differences in health. Their findings showed that the Social Capital hypothesis found the most significant results (2012), indicating that disparities in social class and income drastically decrease someone's ability to trust others from differing classes, posing a reason as to why there might be disparities in prevalence of mental health rates.

Jenkins, et al., (2008), begin to explain the one of the possible reasons as to why there has been an association between income levels and the development of poor mental health. The study posits that the association between income and mental health is due to the levels of debt the person was in. Through their cross-sectional study, they sampled more than 8,000 participants using the Clinical Interview Schedule-Revised, the AUDIT, and SCAN, as well as other measures. Similar to other studies, they found that lower income individuals were more likely to develop a mental disorder, however, the relationship was reduced after adjusting for debt and the relationship completely went away when controlling for other sociodemographic variables. Additionally, people with more debts were found to have an increase in mental health disorders even after adjusting for income levels and other sociodemographic factors (2008). This suggests another plausible explanation for the disparities in mental health related disorders among those of low income and minority groups.

Low income mothers have been shown to have the most psychological distress than any other socioeconomic group (Rosen, Spencer, Tolman, Williams, & Jackson, 2003). In their study, Rosen, Spencer, Tolman, Williams, and Jackson (2003), further examine the development of disorders and dependency issues among unmarried low-income mothers. They measured participants by assessing their AFDC status, which was defined by whether the participant received any additional funding or support from ADFC within the past year. Their results showed that not only were ADFC mothers more likely to be poor, young, and of color, but they were also more likely to have developed a mental disorder over the past year (2003). This shows a strong association for not only income and mental health disorder development, but also how race and gender is shown to affect an individual's mental health outcome.

Hypothesis 1: Individuals from lower income societies will be more likely to develop anxiety compared to higher income individuals.

Effects of Ethnicity on Anxiety Treatment

While anxiety is a disorder that affects many individuals, regardless of ethnicity, the prevalence, type, and need for treatment vary between ethnic groups, which suggests more adequate treatment plans for minority groups, rather than a Western geared solution. In their study, Carter, Mitchell, and Sbrocco (2012), delve into the current medical care provided and the disparities in treatment relating to ethnicity. In their meta-analysis of national studies relating to the treatment of anxiety related disorders and ethnicity, they found that when treating African Americans and European Americans for panic disorders, nearly the entire group of European American participants reported significant improvement, while the African American group reported less than 30% improvement (2012). This suggests that African Americans and other

minority ethnic groups require different treatment plans than the ones provided for European Americans to successfully improve their symptoms (Greenfield et al., 2018).

In their next evaluation, when looking at the treatment of PTSD, they found that African Americans were less likely to find substantial improvement for PTSD treatment compared to that of the European American group. When looking at Asian Americans, they found that when modifying the treatment plan (e.g., changing the treatment location, using an interpreter, looking at cultural beliefs and causes of illness), Asian Americans improved significantly and found the treatment to be just as effective as European Americans found their treatment (2012). This can be applicable to the current study by providing insight into the structural changes needed to improve mental health among minority groups.

When looking at the gap in treatment for mental disorders between socio-economic status, Evans-Laco, et al. (2019), found that high income areas received the most treatment for mental health disorders. They collected data from over 17,000 participants nationally and assessed for mood, substance, and anxiety related disorders and how they were treated. Aside from the income disparities, they also found an association between education and treatment, where the more education a person had, the better treatment they would receive. They attribute these findings to having more knowledge about disease, prevalence, and prevention measures, which would affect their health outcome (2019). These results begin to explain how not only income, but education impact the development of mental health disorders and the type of effective treatment they will receive.

Schmidt, Greenfield, and Mulia (2006), looked at the racial disparities of treatment for alcoholism. When examining ethnic differences in alcoholism, Hispanic men were found to have the highest rates, while Hispanic women had the lowest. Additionally, Black men had higher

rates than White men for alcoholism and both minority groups were shown to have stronger negative consequences of drinking, which suggests a need for differing treatment plans based on race. When looking at rehabilitation centers, minority groups are overrepresented in public programs, while non-minority groups typically are overrepresented at private treatments (2006). This can also affect the type of treatment they receive and may play a role in their resiliency towards the disease. Their work illustrates the disparities in the effectiveness of treatment plans based on socioeconomic status.

While it can be said that access to resources including income and education can play an impact role in the effectiveness of mental health treatments among different minority groups, Hunt, et al. (2013), found insignificant results when evaluating perceived beliefs about mental illness. When comparing White and Black individual's beliefs and its effect on their treatment, they found no statistical significance. When comparing Hispanic and Native American individuals, there was a small difference, however, not large enough to be deemed significant (2013). Their work is salient in determining the racial disparities in the effectiveness of treatments among different ethnic groups.

Hypothesis 2: Non-minority individuals will have experienced less anxiety after getting treatment and minority individuals will have reported unchanged anxiety after receiving treatment.

SES Group Difference in The Use of Healthcare

Socioeconomic status levels have been shown to drastically impact an individual's overall health including their ability to seek proper medical care (Wee et al., 2013). Chan, Lee, and Low (2018), explored the relationship between living conditions (SES) and individual's willingness to seek medical treatment. While looking at the relationship between low and high

rental housing residents, they found that those who lived in low rental housing had less utilization of hospitals. Additionally, within that population, individuals' diseases were treated less and were severely under controlled, despite their clear need for proper medical care. In addition, individuals in poor areas had less awareness of their disease and sought out treatment later than would have been recommended. Some of the reasons listed for this discrepancy include high costs of treatment and lack of available time (2018). Their research can be helpful for demonstrating the relationship between socioeconomic status and an individual's ability seek effective treatment that will improve their mental health outcome.

Research conducted by Devaux and De Looper (2012), further illustrates the income-inequalities in the utilization of health care services nationally. Her meta-analysis showed that those who were more financially well off, had a higher prevalence of using health care compared to lower income individuals. This could be due to the increase in financial and educational resources offered to the higher income individuals, which provides them with more opportunities for routine and frequent visits to health care providers. In contrast, low income individuals may be provided with less financial and educational resources to have the luxury of visiting health care providers if they think something is wrong. When looking at different countries, there is less of an association between income and hospital use as it has been shown that lower income people are just as likely to visit a hospital as high income people, if not more likely to visit. For instance, in France, 94% of their population is covered for health care through privately funded organizations, which has decreased the gap in health care based on race and income levels (2012).

Casey, Call, and Klingner (2001), gave some explanations as to why there are so many ethnic, racial, and SES disparities in the use of medical treatment in hospitals. When looking at

vaccinations, they found no difference in who received them as they were covered by Medicare programs, however, other illnesses and preventative care were shown to be drastically impacted by income levels. They posit that there is such a disparity due to the cost of treatments and the lack of health insurance coverage in low income areas. The location of physician's offices was also another contributing factor to the divide as low-income individuals were less likely to drive far for preventative care than high income individuals (2001).

In a study regarding the use of healthcare among Island Puerto Ricans, Ortega and Alegria (2002), further how self-reliance; a preference to solve problems by themselves, impacts the use of health resources among low impoverished communities. They found that having a positive self-reliance was shown to decrease the use of healthcare by 40%. They suggested that low income Latino groups use self-reliance as a coping mechanism and alternative to traditional medical use, even in circumstances where they had definite medical treatment need. Their study provided another explanation as to why minority groups use hospital services less than non-minority individuals.

Hypothesis 3: Groups from high socioeconomic status will have a higher prevalence of seeking treatment for anxiety compared to low socioeconomic individuals, who will seek out treatment for anxiety less frequently.

Low Socioeconomic Position Increases Rates of Anxiety

In contrast to socioeconomic status, socioeconomic position (SEP) looks at an individual's family type/ marital status (e.g., nuclear, extended, stepfamilies), parental education, and employment status that contribute to an individual's position in life (Galobardes, Shaw, Lawlor, Lynch, & Smith, 2006). Assari, Caldwell, and Zimmerman (2018), looked at the role socioeconomic position plays on an individual's subsequent anxiety. They assessed adolescents

longitudinally over the course of 18 years to measure how parental marital status, parental education, and parental employment impacted their development and severity of anxiety. Their results indicated that parental marital status is associated with symptoms of anxiety based on their race. While White individuals experienced less anxiety when coming from married families, African American individuals did not show any protective factors relating to anxiety when they're parents were married (2018). This suggests that there are consistent health benefits and disadvantages from SEP depending on ethnicity/ race. These findings relate to the current study by illustrating the differences in health outcomes based on individuals' beliefs about their environment and how that relates to their ethnicity/ race.

When looking at other mental disorders, Muntaner, Eaton, Miech, and O'Campo (2004), assessed the role socioeconomic position (SEP) played on schizophrenia, bipolar disorder, and major depressive disorder. While the research on schizophrenia has been illustrious, suggesting that those who have lower SEP have shown to have a higher prevalence of schizophrenia development, there have been no significant relationships found between SEP and the development of bipolar disorder. In contrast, SEP has been shown to have a major effect on depression development, making low SEP individuals 1.81 times more likely to develop depression compared to high SEP individuals (2004). Their research is relevant to the present study by illuminating the possible relationships between SEP and mental health development.

Hudson, Neighbors, Geronimus, & Jackson (2012), examined the relationship between socioeconomic position and the development of major depressive disorder among African American men and women. They held main interviews and re-interviews over the course of 12 months and assessed participants using the World Mental Health version of the Composite International Diagnostic Interview. Their findings suggested that parental income and

unemployment rates strongly predicted the development of major depressive episodes among African American men. However, the strongest predictor for major depressive episodes among African American men was unemployment. When evaluating African American women, the strongest predictor for major depressive disorder was parental income (2012). Their research suggests gender differences when looking at the relationship between socioeconomic position and mental health outcomes.

In their longitudinal study, McLachlan and Gale (2018), looked at the relationship between psychological stress and socioeconomic position and its risk on developing chronic illnesses. They examined over 17,000 adults looking at psychological distress, incidence of chronic illnesses including cardiovascular disease and arthritis, and the associations with socioeconomic position. The results suggested that people with psychological distress were more likely to develop and have later complications to chronic illnesses. When evaluating the relationship between chronic illnesses and socioeconomic position, they found that the risk of developing these diseases differed based on the severity of socioeconomic position the individual was experiencing (2018). Their work is relevant to the current study as it suggests a relationship between not only mental health development, but physical ailments when looking at socioeconomic position.

Hypothesis 4: Minorities with married parents will have more stress and anxiety than non-minorities with married parents.

Method

Participants

One hundred undergraduate students from Chapman University and California State Dominguez Hills chosen through the psychology department participant pool, were randomly

selected through the undergraduate psychology participant tool to participate in the study. Data collected from the questionnaires were analyzed through Qualtrics. There was an unequal distribution of females to males with 17 males (12 %) and 124 females (85%). The mean age of the sample was 22 years (s.d. = 2) with a range of 18 – 25 years.

Frequency of therapy appointments within the last year:

- 126 (90%) identified going 0 – 5 times
- 2 (1.5%) identified going 6 – 10 times
- 2 (1.5%) identified going 11 – 15 times
- 10 (7%) identified going 16+ times

The race/ ethnic breakdown was as follows:

- 30 (21%) self-identified as White/European American
- 15 (10%) self-identified as Black/ African American
- 95 (65%) self-identified as Hispanic/ Latino
- 19 (13%) self-identified as Asian American
- 4 (3%) self-identified as Native American

Income levels are as follows:

- 17 (12%) of participants reported family income levels as \$0 - \$19,999
- 76 (52%) of participants reported family income levels as \$20,000 - \$79,999
- 36 (25%) of participants reported family income levels as \$80,000 - \$169,999
- 8(5%) of participants reported family income levels as \$170,000 - \$319,999
- 9 (6%) of participants reported family income levels as \$320,000 +

Participants will select the highest level of educational achievement their parents have received.

Education levels are as follows:

- 55 (37%) reported high school
- 24 (16%) reported in college
- 55 (37%) reported college (e.g., Graduated with ADT, AA, BS, BA)
- 7 (5%) reported masters degree (e.g., MFT, MBA)
- 4 (3%) reported doctorate degree (e.g., Ph.D., Psy.D., M. D.)

Parental marital status was measured as follows:

- 44 (30%) identified their parents as married
- 13 (9%) identified their parents as divorced
- 13 (9%) identified their parents as together but never married
- 66 (45%) identified their parents as single
- 5 (3%) identified their parents as widowed

Measures

This study used the 21-item Beck Anxiety Inventory (BAI) to measure anxiety among the sampled participants. The BAI was developed by Aaron Beck (1988) and has a mean score of 35, with 36 and above indicating high and potentially concerning levels of anxiety. The test is 21 questions long and takes roughly 10 minutes to complete. The test-retest reliability was reported to be 0.75 and the BAI was found to be correlated with the Hamilton Anxiety Rating Scale (.51) and the Hamilton Depression Rating Scale (.25) (Beck, Epstein, Brown, & Steer, 1988). The survey uses a Likert-style response format. Examples of statements include:

- Fear of worst happening
- Nervous
- Hands trembling

Responses to the statements range from 3 = “Severely – it bothered me a lot” to 0 = “Not at all”.

Anxiety, in this study, is operationally defined as receiving a score of 36 or higher on the Beck Anxiety Inventory. To find this scale, reference Appendix A.

The 10-item Perceived Stress Scale (PSS) was used to measure the perception of stress among the sampled participants. The PSS was developed by Sheldon Cohen (1994) and has a mean score of 14.2 (s.d. = 6.2) for participants aged 18-29 years. A score of 27 or higher would be considered high perceived stress. The test is 10 questions long and will take 5 minutes to complete. There was adequate internal consistency reliability found (0.78), medium concurrent criterion validity ($r = 0.39$, $p < .001$), and good convergent validity ($r = .22$, $p < .001$) (Baik, et al., 2017). The survey uses a Likert-style response format. Examples of questions include:

- In the last month, how often have you been upset because of something that happened unexpectedly?
- In the last month, how often have you felt nervous or “stressed”?
- In the last month, how often have you felt that things were going your way?

Responses to the questions rang from 4 = “Very often” to 0 = “Never”.

Stress, in this study, is operationally defined as receiving a score of 27 or higher on the Perceived Stress Scale. To find this survey, refer to Appendix B.

To assess the prevalence of treatment, treatment outcomes, and who has been to therapy based on their ethnicity and socioeconomic status, the following questions will be asked to participants:

- Are you currently seeing a mental health professional?
- Have you ever seen a mental health professional?
- Have you ever wanted to see a mental health professional?
- How frequently have you seen a mental health professional in the past year?

- Rate your experience seeing a mental health professional? (Only applicable for those who have been to therapy, if not, leave blank)
- Rate the severity of your symptoms after seeing a mental health professional? (Only applicable for those who have been to therapy, if not, leave blank)

To find the Informed Consent Form, reference Appendix C.

Procedure

Participants were selected through convenient sampling. Chapman students were recruited from Chapman's SONA psychology system and Cal State Dominguez Hills were recruited through convenient sampling. At Cal State Dominguez Hills, the survey was submitted to Dr. Desiree Crevecoeur-MacPhail, who gave her students the option of taking the questionnaire in exchange for 0.5 points of extra credit in their class. Those who took the survey through the SONA psychology system at Chapman, were awarded 0.5 points of extra credit. Students accessed the survey in an online format. Prior to beginning the survey, participants read and signed the informed consent page in its entirety. Participants were asked to complete the survey in a quiet setting, preferably one with no other people and no additional distractions. Participants were instructed to refrain from skipping questions and were asked to complete the survey as honestly and accurately as they possibly could. However, if at any time, they felt uncomfortable or confused with a question, they were told they could leave the question blank, rather than filling in an inaccurate answer.

When starting the study, participants began by answering questions regarding their demographics, including their age, gender, race/ ethnicity, parental marital status, income levels, and current education. In the next section, they began the Beck Anxiety Inventory, which took roughly 10 minutes to complete. Following this, the participants finished the survey by taking the

Perceived Stress Scale, which took around 5 minutes to complete. In total, the questionnaire took 20 minutes to complete. After they completed the survey, participants read a debrief page explaining the purpose behind the study.

The sampled participants were compensated for their participation and received one point of extra credit in their classes when completing their survey, therefore, were asked to write their names to allocate them credit. However, for the purpose of the study, their names were left out when entering their data to protect their anonymity and to decrease response bias.

Results

The first hypothesis stated that lower income individuals will experience more anxiety compared to higher income individuals. A correlational test was run to evaluate the difference between low-income groups and high-income groups in regard to anxiety development. On the Beck Anxiety Inventory, scores ranged from 0-63, with higher scores indicating more severe anxiety and lower scores indicating less anxiety. The range calculated from the sample was 16-77. The mean score on the BAI for all participants was 44 ($SD = 13$). The scores for income ranged from 1-5, with 5 being the highest income bracket and 1 being the lowest income bracket. The mean score on the income bracket was 2.54 ($SD = 1.03$). There was a significant positive correlation found between income groups and anxiety levels $r = 0.243$, $p = 0.003$. However, the results indicate a positive rather than the hypothesized negative correlation and is not in support of the hypothesis.

The second hypothesis stated that non-minorities will experience less anxiety after treatment and minorities will experience unchanged anxiety after treatment. A chi-square test was performed to determine the relationship between non-minorities and minorities in regard to symptom improvement following treatment. When analyzing symptom improvement for anxiety

after therapeutic treatment, scores on the test were within the 0 - 4, and participants reported scores ranging from 1 – 4, with higher scores indicating more symptom improvement following treatment for anxiety. The proportion of minorities who had experienced symptom improvement was 20 (63%) and the proportion of non-minorities who experienced symptom improvement was 7 (88%). The resulting chi-square was not significant $X^2 (3) = 1.6, p = 0.659$. This suggests that there was no difference in responses of improvement in anxiety in either one of the groups and thus the hypothesis is not supported.

The third hypothesis predicts that those who have high socioeconomic status will seek out treatment for anxiety more than low socioeconomic status individuals. A correlational test was performed to examine the relationship between high and low socioeconomic status in comparison with seeking out treatment for anxiety. The reported range of number of times a participant saw a therapist was 0 - 45, with higher scores indicating more frequent visits for treatment. The mean score in the minority group for treatment sessions 2 ($SD = 6$) and the mean score of the nonminority group for the number of times they sought out treatment was 3.8 ($SD = 10$). There was a significant difference found between nonminority and minority groups and the amount of treatment they sought out to improve symptoms of anxiety, $r = 0.404, p = 0.022$. These results support the hypothesis.

The fourth hypothesis asserted that minorities with married parents would experience more stress and anxiety compared to non-minorities. An independent samples T-test was conducted to determine the relationship between minorities and non-minorities with married parents and their subsequent anxiety levels. Scores on the anxiety scale ranged from 0-63, with participants reporting scores ranging from 16-77, with higher scores indicating higher levels of anxiety. The mean score from the minority group with

married parents was 40.7 (SD = 13.6) and the mean of the nonminority group with married parents was 48.2 (SD = 12.2). There was no statistically significant difference between minorities and non-minorities with married parents in relation to their levels of anxiety, $t(42) = 5.5, p = 0.233$. These results do not support the hypothesis.

Stress was another factor that was assessed, allowing participants to score within 0-40, with participants scores ranging from 12 to 31, with higher scores relating to increased stress symptoms. The mean score for non-minorities with married parents and stress was 21 (SD = 5.3) and the mean score for minorities with married parents and stress was 21.6 (SD = 4.8). There was no significant difference observed between minorities and non-minorities with married parents relating to their stress levels, $t(42) = -3.7, p = 0.849$.

Discussion

The current study examined the impact that socioeconomic status and ethnicity played on anxiety and stress onset, prevalence of treatment, and treatment experience. In a similar study, Businelle, Mills, Chartier, Kendozor, Reingle, & Shuval (2014), examined the relationship between socioeconomic status and mental health outcomes. They looked at psychosocial determinants such as the number of stressors in someone's life and discovered that factors such as race, sex, and ethnicity significantly predicted mental health outcomes. Furthermore, they found that the mediating factors were socioeconomic and demographic differences (2014). In the current study, two hypotheses were not statistically significant, while two hypotheses were statistically significant.

Hypothesis I proposed that low-income groups will experience more stress compared to high income groups, who would experience less. While these results were significant, they did not support the hypothesis, as the results indicated high income

individuals experience more anxiety compared to low-income individuals. Some studies have shown that high income individuals have more access to educational resources (Lai, Yu, & Woo, 2020; Assari, Preiser, & Kelly, 2018) and that having access to more education will increase someone's knowledge and therefore status (Engzell & Tropf, 2019), boosting their mental health. While this study did not find those results, it could be suggested that higher income levels may lead to increases in education, which then may allow these individuals to be better equipped to describe what is going on with them (e.g., self diagnosis) and be educated about their own mental health, which could impact how they report their anxiety and stress levels on a questionnaire. Dark, Flynn, Rust, Kinsell, and Harman (2017), assessed the demographic differences for those who visited the ER for anxiety over the course of two years. Out of the millions of people they sampled, found that anxiety related visits accounted for almost 93% of the ER visits. They also found demographic differences in those with anxiety who went to the ER with non-Hispanic whites coming in more frequently and experiencing more anxiety than other demographic groups (2017). Additionally, there was a small sample of high income individuals compared with a large sample of low income individuals, which could have also skewed the results in a way that did not align with the hypothesis.

Participants may have also reported less anxiety among the minority group compared to the non-minority group because of societal standards regarding race and academic achievement. While the sample was only collected among college educated students, the majority of students sampled from CSUDH were Hispanic, while the majority of individuals sampled from Chapman were non-Hispanic/ White, therefore there may be different cultural expectations in regard to academic achievement and pressure from

parents, which could have impacted participants reported anxiety levels. Turcios-Cotto and Milan (2013) evaluated the disparities in academic success among different ethnic groups. In regard to future educational expectations, Latinos were less likely to report that they could see themselves attending college in the future and were more likely to want to start their own family or prioritize domestic settings more than academic education. Additionally, more than any other group, Latinos were less likely to prioritize educational expectations (2013). Therefore, minorities may have reported less anxiety because there is less focus on academic performance among Hispanic, whereas non-Hispanic/ Whites may place more value on excelling academically and thinking about higher education.

Hypothesis II proposed that non-minority individuals will have experienced less anxiety after getting treatment and minority individuals will have reported unchanged anxiety after receiving treatment. The results were not significant, and they did not support the hypothesis. One of the reasons as to why the results suggested that there was no differences between non-minority and minority individuals in regards to symptom improvement is the lack of responses from the participants in the study. The majority of the participants either had never seen a mental health professional before or did not respond to the question. Therefore, it was not possible to determine significance and to generalize this to the population. Additionally, the sample only evaluated the effects of ethnicity and treatment seeking for anxiety among college students. Sampling college students may have impacted the results because college students typically experience more anxiety and stress compared to other groups (American College Health Association, 2018). The high prevalence of anxiety related disorders and stress among college students in general could account for the lack of differences in responses among the participants.

Hypothesis III proposed that those who have high socioeconomic status will seek out treatment for anxiety more than low socioeconomic status individuals. The results were significant and supported the hypothesis, suggesting that high income individuals seek out treatment for mental health more frequently than do low-income individuals. In support of this study's findings, Coles and Coleman (2010), evaluated the discrepancy between those who seek out treatment for anxiety related disorders and those who don't. They sampled college students and asked them to correctly distinguish between various forms of mental health issues, determine its cause, and assesses whether or not they should be treated. OCD, phobias, generalized anxiety disorder, and depression were all analyzed to determine which disorder would be most difficult for participants to diagnose and label. Depression, OCD, and phobias were recognized by 80% of the participants, whereas generalized anxiety disorder was only recognized within 50% of the sample (2010). Additionally, this sample was comprised of all well-educated young adults, so the results have even more impact on how education may impact an individual's ability to recognize and label a psychiatric illness. The current studies results suggest that high income is associated with more seeking out treatment behavior and it can be posited that the results may be due to higher income individuals being able to better identify their own symptoms.

Hypothesis IV proposed that minorities with married parents will have more stress and anxiety than non-minorities with married parents. The results were not significant and did not support the initial hypothesis. Skewed demographic distributions could account for some of the reasons the results did not align with the hypothesis. There were significantly more minority individuals in the sample compared to non-minority individuals (116 vs 30), which could have skewed the data in a way that did not support the hypothesis. While the sample size of the minority group was a large enough, there were only 30 people in the non-minority group, which

is a small number of individuals for a given sample, which makes it difficult to conclude external validity. Additionally, the sample of minorities vs non-minorities who had married parents was also unevenly distributed (33 minorities v 11 non-minorities). Regarding the lack of protective effects demonstrated through parental marital status, the COVID-19 pandemic could have accounted for these results. There has been a significant increase in anxiety and stress across all demographics, genders, and ages due to the COVID-19 pandemic. 40% of adults within the United States have reported anxiety symptoms during the pandemic. There has also been an increase in sleep disturbances, changes in appetite, and increase in alcohol abuse following the pandemic (Panchal, Kamal, Cox, & Garfield, 2021). The COVID-19 pandemic has isolated individuals from communication and socialization, while also increasing job loss, evictions, poor mental health outcomes, and even chronic diseases. The pandemic could be a contributing factor as to why the results did not show a protective effect of parental marriage on anxiety and stress.

There were several limitations for this study that should be addressed. There was a big difference in participants who were minorities compared to non-minorities (116 minorities and 30 non-minorities). This unequal distribution of ethnic differences made it difficult to test each hypothesis, since the majority of this study was trying to determine the differences in anxiety and treatment as it related to ethnic differences. Additionally, the sample was also comprised mostly of college psychology students. This made it difficult to determine external validity as it was only sampled across college students who had a background or some knowledge in psychology related coursework. The sample size for most of the hypotheses were less than 50, as each Hypothesis focused on a smaller subset of responses that did not have a large enough sample size to be significant. For future studies, eliminating age restrictions and college level restrictions may help to determine generalizability. Future researchers wanting to better understand how

ethnicity and SES impact anxiety should aim for an even distribution of ethnic differences among the participants and try to do in person interviews of the participants that not only ask about their anxiety levels in the past month, but anxiety they have experienced in the past year at least. Researchers should also focus solely on those who have seen a mental health professional or are currently seeing one to determine how ethnicity affected the participants overall symptom improvement. In the current study, there were minimal participants who had seen a mental health professional or currently seeing one, which made it difficult to analyze how ethnicity impacted their symptom reduction.

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Appendix A: Beck Anxiety Inventory

	Not at all	Mildly, but it didn't bother much	Moderately – it wasn't pleasant at times	Severely – it bothered me a lot
Numbness or tingling	0	1	2	3
Feeling hot	0	1	2	3
Wobbliness in legs	0	1	2	3
Unable to relax	0	1	2	3
Fear of worst happening	0	1	2	3
Dizzy or lightheaded	0	1	2	3
Heart pounding/ racing	0	1	2	3
Unsteady	0	1	2	3
Terrified or afraid	0	1	2	3
Nervous	0	1	2	3
Feeling of choking	0	1	2	3
Hands trembling	0	1	2	3
Shaky/ unsteady	0	1	2	3
Fear of losing control	0	1	2	3
Difficulty in breathing	0	1	2	3
Fear of dying	0	1	2	3
Scared	0	1	2	3
Indigestion	0	1	2	3
Faint/ lightheaded	0	1	2	3
Face flushed	0	1	2	3
Hot/ cold sweats	0	1	2	3

Appendix B: Perceived Stress Scale

	Never	Almost Never	Sometimes	Fairly Often	Very Often
In the last month, how often have you been upset because of something that happened unexpectedly?	0	1	2	3	4
In the last month, how often have you felt that you were unable to control the most important things in your life?	0	1	2	3	4
In the last month, how often have you felt nervous or stressed?	0	1	2	3	4
In the last month, how often have you felt confident about your ability to handle your personal problems?	0	1	2	3	4
In the last month, how often have you felt that things were going your way?	0	1	2	3	4
In the last month, how often have you felt that you could not cope with all the things that you had to do?	0	1	2	3	4
In the last month, how often have you been able to control irritations in your life?	0	1	2	3	4
In the last month, how often have you felt that you were on top of things?	0	1	2	3	4
In the last month, how often have you been angered because of things that were outside of your control?	0	1	2	3	4
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	1	2	3	4

Appendix C: Informed Consent Form

ADULT INFORMED CONSENT TO PARTICIPATE IN RESEARCH**Title of Study:**

The effects of ethnicity and socioeconomic status on anxiety development and treatment

Members of the Research TeamLead Researcher:

Brianna Liberman

Senior Undergraduate Student

Department of Psychology

Email: BriLiberman@gmail.com

Faculty Sponsor:

Desiree Crevecoeur-MacPhail, PhD

Email: Macphail@chapman.edu

Key Information

You are being asked to join this research study. We will only include those who wish to participate in this study. To be eligible to participate, you must be between the ages of 18-25 and currently in college or have graduated from college. Take your time to decide if this study is right for you and reach out for any additional information needed.

If you agree to participate in this study, the duration of the projection will involve:

1. Males/ Females between the ages of 18-25
2. Procedures include taking a brief 25-30 minute survey asking questions regarding basic demographics, anxiety/ depression, and perceived stress
3. The study will be completed in one online (web) session that should not take longer than 30 minutes
4. The surveys will be completed on the Chapman SONA psychology system
5. There are minimal risks associated with this study; risks include possible mild boredom or distress from answering questions about stress and anxiety
6. You will be provided 0.5 unites of research credit for your participation

Invitation

You are invited to take part in this research study. The information in this form is meant to help you decide whether or not to participate. If you have any questions, please ask.

Why are you being asked to be in this research study?

You are being asked to participate in this study because you are a college student and are between the ages of 18-25 years old.

What is the reason for doing this research study?

People develop different mental health disorders and are treated differently likely based on their ethnicity and socioeconomic status. This research is designed to better understand, to what extent, ethnicity and socioeconomic status impacts the development of anxiety, how persistent their anxiety is, and if anxiety is treated differently based on the individual.

What will be done during this research study?

Participation in this study involves:

1. Reading this information sheet about the study and asking questions you may have about the study via email or phone prior to participating. Once you have read this sheet and any questions you may have about the study are answered to your satisfaction, then you can indicate your agreement to participate at the end of this form.
2. Once you have agreed to participate, you will be asked to complete a series of questions and tasks in the SONA psychology system. Specifically, you will be asked to complete a 39-item survey using an internet-based platform for the questionnaire. The survey will ask questions regarding demographics, anxiety, depression, and perceived stress. You may complete them from a home computer, laptop, or mobile device.
3. It is expected that the entire set of tasks should take no longer than 30 minutes to complete.
4. Once you finish the set of tasks and assessments in the SONA psychology system, the system will transmit information regarding your completion of the study back to the SONA psychology system so that your 0.5 units of participation credit will be recorded in the system.

How will my [data/samples/images] be used?

The Chapman study investigators listed at the top of this consent form will use the anonymous data collected in the online survey for statistical analyses that will tell us more about how ethnicity and socioeconomic status impacts an individual's mental health.

What are the possible risks of being in this research study?

As with any study involving collection of data, there is the possibility of breach of confidentiality of data. Other risks in the research include possible boredom and emotional and/or psychological distress because the surveys involve sensitive questions about your mental health. It is possible that other risks could occur that are not described in this consent form.

What are the possible benefits to you?

You are not expected to get any direct benefits from being in this study.

What are the possible benefits to other people?

Your participation may benefit others or society through the knowledge we gain about how societal influences such as poverty and divorce encourage the development of mental illness. These findings will hopefully encourage further research and support to bridge the gap between those who are sick and those who are healthy.

What are the alternatives to being in this research study?

If you are participating in this study for extra credit in a course or as part of a research participation course requirement, you have the option to participate in other studies or alternative activities/ assignments to satisfy the extra credit or participation requirement. You may also choose not to participate in this study.

What will participating in this research study cost you?

There is no cost to you to be in this research study.

Will you be compensated for being in this research study?

You will receive participation course credit for an eligible course through the Psychology Department SONA Research Experience Management System (Subject Pool). You will receive 0.5 points of extra credit by participating in this study.

What should you do if you have a problem during this research study?

Your welfare is the major concern of every member of the research team. If you have a problem as a direct result of being in this study, you should immediately contact one of the people listed at the beginning of this consent form.

How will information about you be protected?

No identifying information is collected in the online survey and participants sign-up for the online survey through the SONA Research Experience Management System which provides mechanism to direct participants to the online survey and also transmits information regarding study completion while maintaining the deidentified nature of survey data. The deidentified data is stored in the Qualtrics Survey Software System which uses industry-standard measures for the prevention of intrusion of the database via unwanted entities (e.g., hackers). Even if these defenses were to be breached the data does not have any identifying information.

Steps will be taken to ensure there is minimal risk for loss of confidentiality. The research team will not collect personally identifiable information from participants and their data will remain anonymous in the Qualtrics survey datafile. Thus, the risk for loss of confidentiality remains minimal.

Reasonable steps will be taken to protect your privacy and the confidentiality of your study data. All data collected in this online survey is anonymous.

No identifying information, such as your name, email, or IP address, is collected during this web-based study on the SONA psychology department system. The Chapman SONA research experience management system provides a direct link to this web-based study and then transmits information of your completion of the study so that you may receive research participation credit in the SONA system. None of the data you provide, such as your answers to the questions, are transmitted to the SONA system.

The data will be stored electronically through a secure server and will only be seen by the research team.

The only people who will have access to your research records are the members of the research team, the Institutional Review Board (IRB), and any other person, agency, or sponsor as required by law. Information from this study may be published in scientific journals or presented at scientific meetings, but the data will be reported as group or summarized data and your identity will be kept strictly confidential. The researchers intend to keep anonymous research data indefinitely.

What are your rights as a research subject?

You may ask any questions about this research and have those questions answered before agreeing to participate in the study or during the study.

For study related questions, please contact the investigator listed at the beginning of this form.

For questions concerning your rights or complaints about research, contact the Institutional Review Board (IRB) at (714) 628 2833 or irb@chapman.edu

What will happen if you decide not to be in this research study or decide to stop participating once you start?

You can decide not to be in this research study, or you can stop being in this research study (i.e., withdraw) at any time before, during, or after the research begins for any reason. Deciding not to be in this research study or deciding to withdraw will not affect your relationship with the investigator or with Chapman University. You will not lose any benefits to which you are entitled.

Who can answer my questions about the study?

If you have questions, concerns, or complaints, please contact Brianna Liberman at (949) 444 3676. This research has been reviewed and approved by an Institutional Review Board (IRB). You may talk to them at (714) 628 2833 or irb@chapman.edu if:

1. Your questions, concerns, or complaints are not being answered by the research team
2. You cannot reach the research team
3. You want to talk to someone besides the research team
4. You have questions about your rights as a research participant

5. You want to get information or provide input about this research

Documentation of informed consent

Participants will provide consent by clicking a button that indicates their agreement to participate in the study. If they click the button indicating they do not wish to participate, they will be exited from the Qualtrics Survey Software system. Allowing participants to provide consent by clicking a button electronically allows for the answers that participants provide in response to study questions and assessments to remain anonymous.

The SONA system is able to link potential participants to the Qualtrics Survey System and then for Qualtrics to transmit information back to SONA so that participants can be appropriately compensated without identifying participant data in Qualtrics. Therefore, no personally identifiable information will be stored with data collected in Qualtrics.

You are voluntarily deciding whether or not to be in this research study. By selecting the option below that you agree to participate in the study you are indicating that:

- (1) you have read and understood this consent form,
- (2) you have contacted our study team with any questions you have about the study and your questions have been answered, and
- (3) you have decided to be in the research study.

You can download a copy of this consent form to keep at the link below.

- I give my consent to participate in this study (selecting this option will link you to the rest of the study survey)
- I do not wish to participate in this study (selecting this option will close the survey)