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ANALYZING THE IMPACT OF SOCIOECONOMIC FACTORS ON THE MENTAL HEALTH OF UNEMPLOYED PEOPLE

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ABSTRACT

During the COVID-19 pandemic, unemployment rates skyrocketed worldwide. Many struggled with the severe mental health consequences of unemployment. Having a deeper understanding of these consequences and the factors that affect them could allow us to provide much better therapies and programs to alleviate mental health issues in the unemployed. In this paper, the respondent's level of education, income, and the length of unemployment and their effect on mental health were analyzed. This is done using two Chi-Square tests and a Kruskal-Wallis test, respectively. The results show that the length of unemployment does have a significant impact on the number of symptoms of a mental illness experienced with this test returning a p-value of $7.91(10^{-7})$. The income bracket and level of anxiety test returned a p-value of 0.055, while the income bracket and level of depression test returned a p-value of 0.3, indicating that income bracket makes no significant difference on the rates of either illness. The education and level of anxiety test returned a p-value of 0.12, and the education and level of depression test returned a p-value of 0.14, indicating that education level makes no significant difference on the rates of either illness. The only variable that made a significant impact on the mental health of the unemployed was the length of the unemployment, as indicated by the low p-value.

Keywords: Unemployment, Job loss, Mental Illness, Anxiety, Depression

INTRODUCTION

Over the course of the COVID-19 pandemic, millions of people in the United States alone lost their jobs, propelling America to its highest unemployment rate since the Great Depression. These record levels of unemployment furthered the mental health crisis that has been brewing in America for decades, putting many more at risk of developing a mental illness [1].

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As many discovered over the last year, unemployment is a painful experience, physically, financially, and especially mentally [2, 3].

Extended periods of unemployment can result in difficulty starting tasks, holding conversations, concentrating, and remembering things. All of these skills are essential to virtually any job, and their loss can be difficult [4]. We must now consider the effects of long periods of unemployment on people returning to the workforce to better support them as they return to work.

In this paper, I examine how socioeconomic factors, such as household income and education impact one's mental health while experiencing unemployment. This study will determine whether certain people are more likely to develop a mental illness when faced with unemployment based on their household income, education, and the length of the period of unemployment. Understanding this could allow for more tailored and targeted mental healthcare and government programs for the people who are identified as higher risk.

Literature Review

Past research has shown us that unemployment can result in severe mental health issues. The mental health impacts of unemployment can include depression, anxiety, and suicide. Unemployment significantly increases the risk of suicide among adults, especially for men. Additionally, longer periods of unemployment (greater than 90 days) result in an increased risk of suicide than shorter periods [3, 5]. Interestingly, the threat of unemployment can carry the same amount if not more psychological distress than actually experiencing unemployment [6].

Differing ideals and social norms can result in differing causes of mental illness. A study in Santiago, Chile found that the greatest factors that contribute to mental illnesses are living in low-quality housing, having less education, and experiencing a sudden income drop [7]. However, a study conducted in Britain did not find any link between education levels and the prevalence of mental illness. Studies conducted in the United States and Europe did not find any link between income and mental illness [7, 8]. Whether the level of education or income bracket impacts the mental health of the unemployed varies by location.

Unemployment or underemployment among educated people can lead to poorer mental health due to lower social status, loss of job-related skills, family pressures and loss of income. In a study of highly educated immigrants in Canada, participants listed mental stress as the biggest impact of underemployment [3].

In the long term, social unrest is a serious consequence of high levels of unemployment among educated people in developed, developing, and underdeveloped countries [9]. For example in Tunisia, nearly a third of the educated youth is unemployed, leading to growing unrest. [10]. In Spain, the Indignados movement took root after the unemployment rate hit record highs in 2011 [11]. Also in 2011, the Tahir revolution erupted in Egypt in response to high rates of youth unemployment [12].

Low levels of education and a history of mental illness tend to exacerbate each other and lead to higher rates of unemployment, especially among younger people [13]. Additionally, there is a positive correlation between unemployment and right-wing extremism and drug use among young Americans [9].

There is a strong link between unemployment or job loss and mental illness. However, the effects of the length of unemployment and socioeconomic factors such as household income and education levels on the severity of mental illness have not been explored as much.

METHODS

I will answer the following questions with my research:

1. How does experiencing longer periods of unemployment affect the number of symptoms of mental illness experienced?
2. How does having a greater level of education affect the rates of depression or anxiety among people faced with unemployment?
3. How does having a higher income affect rates of depression or anxiety among people faced with unemployment?

Dataset

The dataset used to analyze these questions was titled "Unemployment and Mental Health" [14]. This dataset contains information relating to the mental health, employment status and socioeconomic status of the respondents. The data in this dataset was collected via a paid online survey using stratified random sampling with the strata being defined by differences in income and location. 334 people returned the survey, 86 of whom were unemployed.

RQ1: Total gap length vs. number of symptoms

The specific variables used for the first research question were "total gap length" and whether or not respondents experienced various symptoms of a mental illness. These symptoms include anxiety, depression, tiredness, a lack of concentration, obsessive behaviors, mood swings, panic attacks, and compulsive behavior. Total gap length represents the total length of gaps in the respondent's resumé. A new variable that contains the number of the above symptoms a person experiences was created. Non-parametric methods were used as the data failed the normality assumption test needed to use the parametric equivalents. Specifically, a Kruskal-Wallis test was used to determine if the difference in the median gap length for each number of symptoms is statistically significant. $a = 0.05$ and the following null and alternative hypotheses were used.

H_0: The median gap length is equal across all numbers of symptoms

H_a: The median gap length is not equal across all numbers of symptoms

If the null hypothesis is rejected, a Dunn's test, which determines which groups have statistically significant medians, is conducted.

RQ2: Income bracket vs rates of Depression and Anxiety

To explore this question, we looked at the data of the 86 unemployed people in the dataset. Two tables were created based on the income brackets: one with the number of people experiencing depression, and the other with the number of people experiencing anxiety. Due to

the small size of the dataset, all income brackets that had one or fewer people in them were grouped, as seen in figure one.

Income Bracket Regrouping

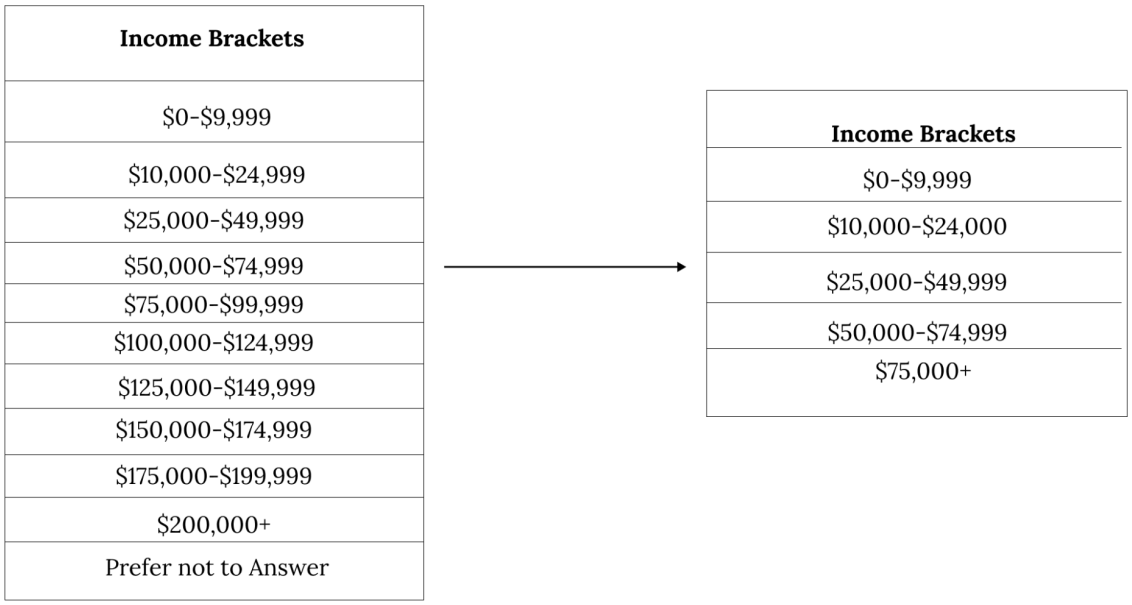

Figure 1: Diagram of how the brackets were regrouped. Brackets above $75,000 were grouped, and the prefer not to answer category was removed.

Then, two separate Chi-Square Tests were performed using the regrouped data in the tables with a= 0.05 and the following null and alternative hypotheses:

H_0: There is no relationship between income bracket and rates of a mental illness
H_a: There is a relationship between income bracket and rates of a mental illness

RQ3: Level of education vs rates of depression and anxiety

This question used only the unemployed respondents. A Chi-Square test was used for RQ3 to compare the rates of depression and anxiety among unemployed people in each level of education. a= 0.05 was used along with the following null and alternative hypotheses.

H_0: There is no association between the level of education obtained and the number of people who have a mental illness
H_a: There is an association between the level of education obtained and the number of people who have a mental illness

Again, due to the small sample size the seven education level options in the dataset were grouped into five larger brackets as seen in figure two.

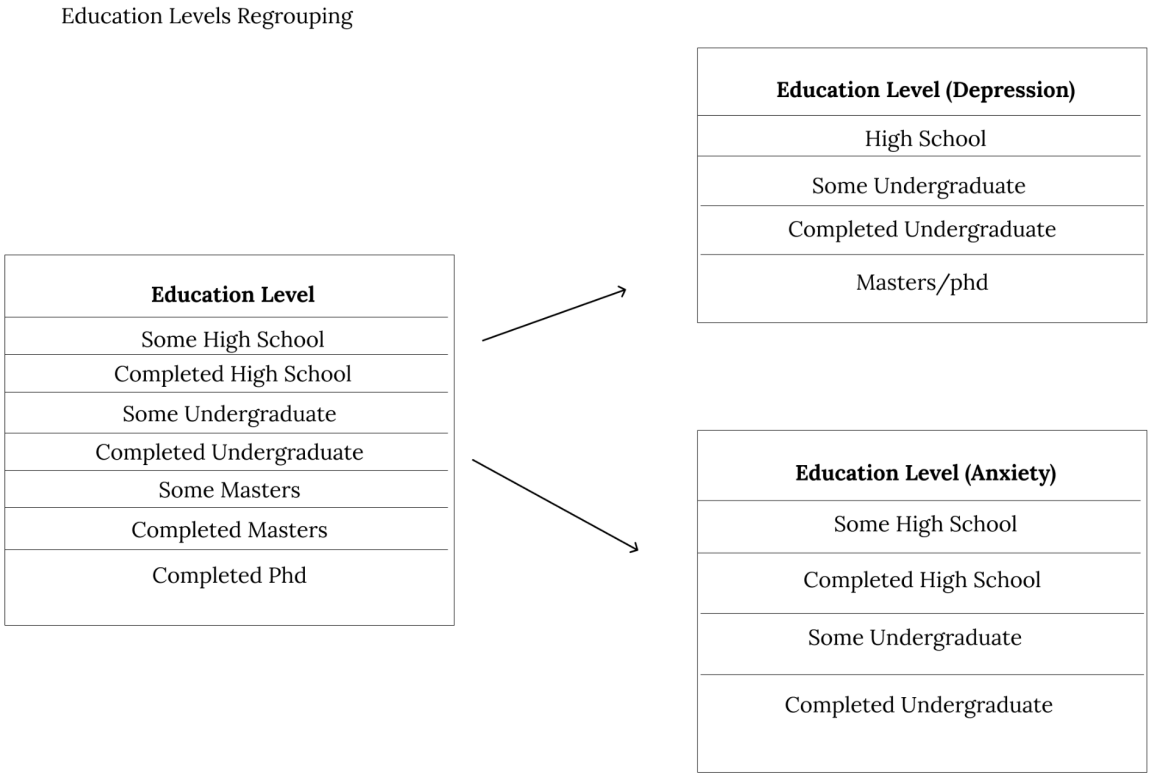

Figure 2: Diagram of how the brackets were regrouped. The original grouping is seen on the left, and the regrouped brackets are seen on the right

RESULTS

RQ1: TOTAL GAP LENGTH VS. NUMBER OF SYMPTOMS

The p-value ($7.91(10^{-7})$) from the Kruskal-Wallis test was less than 0.05, indicating that the length of the resumé gap does have a significant effect on the number of symptoms experienced. The Dunn's test was used to understand where there was a significant difference in the number of symptoms due to the resumé gap. The results were only significant when the respondent had five or eight symptoms.

Because the number of symptoms that are significant does not follow any specific pattern, it was determined that the symptoms themselves must have some significance. To figure out if one symptom was more prevalent in the five symptom group, I determined which symptoms were most common among each group. In the five symptom group, anxiety and depression were the most

common and mood swings and compulsive behaviors were the least common. The same pattern was true for all groups, from one to seven symptoms.

To determine which symptoms were significant, a separate Kruskal-Wallis test was conducted. This test measured the effects of the length of the resumé gap on the prevalence of each individual symptom. This test was conducted in order to determine if any of the symptoms had more of an impact than the others. The following null and alternative hypotheses were used:

H_0: There is no significant difference in the length of resumé gaps amongst all symptoms of a mental illness

H_a: There is a significant difference in the length of resumé gaps amongst all symptoms of a mental illness.

The p-value of this Kruskal-Wallis test (0.014) indicated that at least one of the symptoms is significantly different from the expected value, so a Dunn's test was conducted. The Dunn's test did not find any significant values even though the Kruskal-Wallis test showed that at least one existed. This is likely because the test was not powerful enough to pick up a difference in the small sample size.

RQ2: Income bracket vs rates of Depression and Anxiety

Anxiety and Income Bracket

The Chi-Square test using the table seen in figure three returned a p-value of p= 0.055. This indicates that we should fail to reject the null hypothesis, and there is not a significant difference between income brackets and levels of anxiety among unemployed people.

Household Income Bracket	Number of people w/ anxiety
$0-$9,999	12
$10,000-$24,999	3
$25,000-$49,999	6
$50,000-$74,999	9
$75,000+	3

Figure 3: Number of People with Anxiety in Each Income Bracket in Modified Table.

Depression and Income Bracket

This test used the table seen in figure four. The p-value of $p = 0.30$, indicates that we should fail to reject the null hypothesis and that there is not convincing evidence that there is an association between income bracket and the number of people who have depression.

Household Income Bracket	Number of people w/ Depression
$0-$9,999	11
$10,000-$24,999	5
$25,000-$49,999	5
$50,000-$74,999	7
$75,000+	4

Figure 4: Number of People with Depression in Each Income Bracket in Modified Table

RQ3: Level of education vs rates of depression and anxiety

Anxiety and Education

This test used the table seen in figure five. The p-value of $p = 0.12$, indicates that the null hypothesis should fail to be rejected. There is not convincing evidence that the level of education obtained has an effect on the number of people with anxiety.

Education Level	number of people w/ anxiety
Some High school	4
High school	14
Some Undergraduate	11
Undergraduate	8

Figure 5: Number of People with anxiety in Each education level in ModifiedTable

Depression and Education

This test was done with the table seen in figure six. It returned a p-value of p= 0.14. This indicates that there is not a significant difference between the number of people with depression between income brackets. The level of education obtained does not have an effect on the number of people with depression

Education Level	Number of People w/ Depression
High school	12
Some Undergraduate	11
Undergraduate	6
masters/Phd	4

Figure 6: Number of People with depression in Each education level in Modified Table.

CONCLUSION

RQ1: Total gap length vs. number of symptoms

The results for RQ1 indicate that the length of resumé gaps do have a significant impact on the number of symptoms experienced by the respondent. However, the significant difference was

only observed for people who experience five or eight symptoms. This is possibly because of a slightly higher prevalence of the specific symptoms that were found to be significant in the Kruskal-Wallis Test comparing the individual symptoms. The prevalence of each symptom in the five symptom group follows the same pattern as all the other symptoms. The order of prevalence discovered reflects the order of prevalence for these symptoms and illnesses in the United States. There were concerns about the validity of the data because it was collected via an online survey, but this indicates that the data was collected from a truly random sample.

RQ2: Income and anxiety/depression

There is no significant difference in the rates of depression or anxiety between income brackets. The results for this question demonstrate that household income bracket does not make a significant difference in the number of people who have anxiety or depression.

RQ3: Education level and anxiety/depression

There is no significant difference in the rates of depression or anxiety between education levels. The results for this question indicate that education does not make a significant difference in the number of people who have anxiety or depression.

Limitations and Future Work

The sample size in this dataset was very small, so further testing with a larger sample size is necessary to determine the worth of tailored therapy and government programs. Additionally, this dataset only contains information relating to college education, so trade schools and other forms of higher education were not included. Future work could compare the rates of depression and anxiety among unemployed people with degrees in different subject areas, and with other forms of higher education. Furthermore, the data used for this study does not differentiate between those who are temporarily unemployed and those who are unable to work. This may have caused errors in the comparison of resume gap and number of symptoms, as some people may have a long resume gap because they are unable to work. Future work could control for this by distinguishing between those that cannot or are no longer working and those that are unemployed.

Summary

In this study, I used Kruskal-Wallis and Chi-Square tests to determine the impacts that socioeconomic factors have on the mental health of the unemployed. Knowing this could let us create better, more tailored therapies and programs. I found that greater lengths of unemployment result in experiencing more symptoms of a mental illness. This tells us that the people who are unemployed for longer tend to experience more severe mental illness and will likely require more care. Additionally, I found that there is no significant difference in the rates of depression or anxiety amongst income brackets or education levels. However further testing needs to be done with more data to assess the value of tailored programs for certain education levels or income

brackets. Overall, there is convincing evidence that greater lengths of unemployment result in more mental health symptoms, but more research is needed to determine the impact of education levels and income bracket on rates of depression and anxiety

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