

Project1

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1 ITCS 3162 Data Mining Project 1:

2 Music's Impact on Mental Health

2.0.1 Shan Raheim

Kaggle Link for the Dataset:

<https://www.kaggle.com/datasets/catherinerasgaitis/mxmh-survey-results>

2.0.2 Problem Introduction

With the growing issues of mental health in our society today, solutions and methods to handle and manage the symptoms experienced by millions are being discussed. Not everyone has access to healthcare and professional help, so people are left to deal with their issues on their own or seek help that is accessible to them, which may include simple things they can incorporate into their day-to-day lives. Hobbies, friends, and family are some of the most common ways people can find support for mental health issues, especially since professional help may not be an immediate option available to everyone. Music is something that most people can access and can be paired with many activities. Music has the ability to directly impact how a person behaves or feels. It can be a hobby or something played in the background, but it can affect someone on a deeper level. Since this impact can be essential to how people handle issues, I am curious to find out if music has a meaningful effect on people with mental illnesses, as it is something easy for people to access from almost anywhere at any time.

2.0.3 Data Introduction

The dataset I used for this project is called "Music & Mental Health Survey Results." This dataset contains 737 rows and 33 columns. It includes responses from hundreds of respondents who have mental illnesses and experience symptoms such as Depression, Anxiety, Insomnia, and OCD, gathered through a Google form. Some examples of columns in this dataset include the frequencies of genres listened to by the respondents, whether they believe music helps with their mental illnesses, the amount of time they listen to music, and whether they listen to music while studying or working. For the different illnesses, the respective columns are measured using self-reported data on a scale from 1 to 10.

2.0.4 Data Pre-processing

For my data pre-processing I actually did not have to do much. When I initially looked through the dataset it was clean. It did not have irrelevant data, duplicates, or missing values.

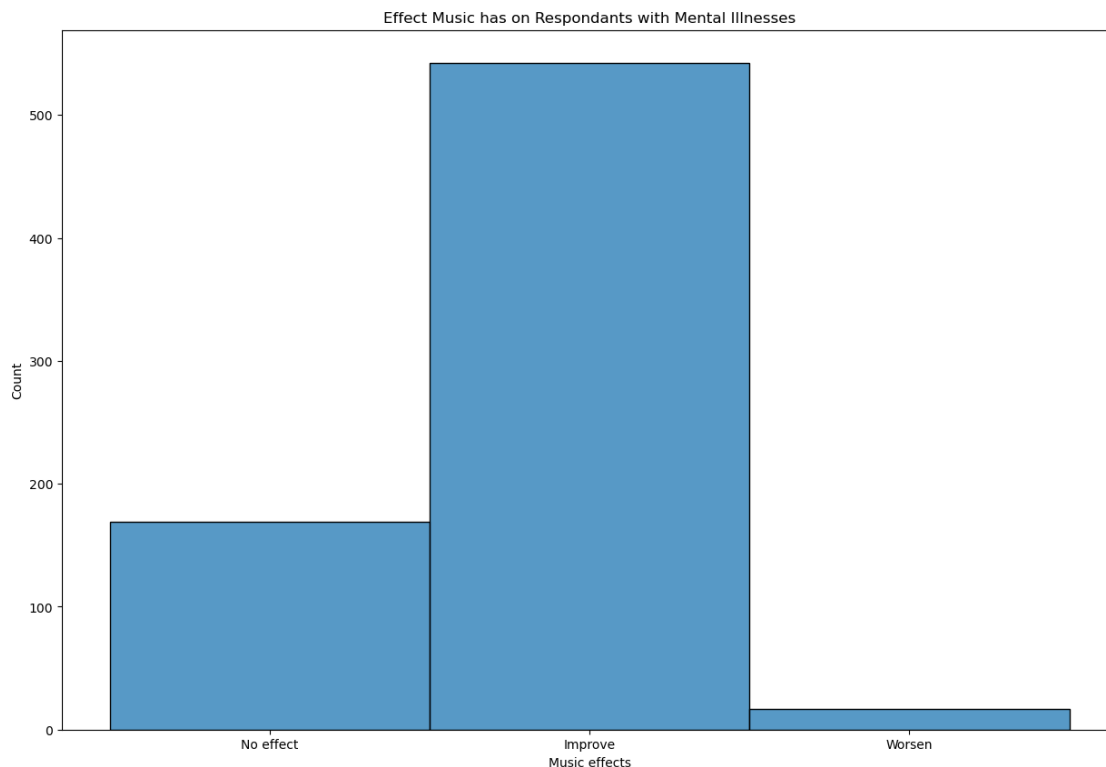
```
[10]: import pandas as pd
import seaborn as sb
import matplotlib.pyplot as plt
```

```
[11]: data_filepath = "../ITSC3162/mxmh_survey_results.csv"
data = pd.read_csv(data_filepath)
```

2.0.5 Visualization 1: Bar Chart of the Mental Illnesses Affected by Music

```
[13]: plt.figure(figsize=(15,10))
plt.title('Effect Music has on Respondants with Mental Illnesses')
sb.histplot(data['Music effects'])
```

```
[13]: <Axes: title={'center': 'Effect Music has on Respondants with Mental Illnesses'}, xlabel='Music effects', ylabel='Count'>
```



According to the histogram above from the survey results majority of the respondants say that music helps improve their mental condition. A small portion says it has no effect and even smaller amounts show that it actually worsens their mental state but compared the amount that says it

improves it, the difference is substantial. It shows music can help benefit their mental states with symptoms from mental illnesses.

2.0.6 Most Common Mental Illnesses and Relation to the Data

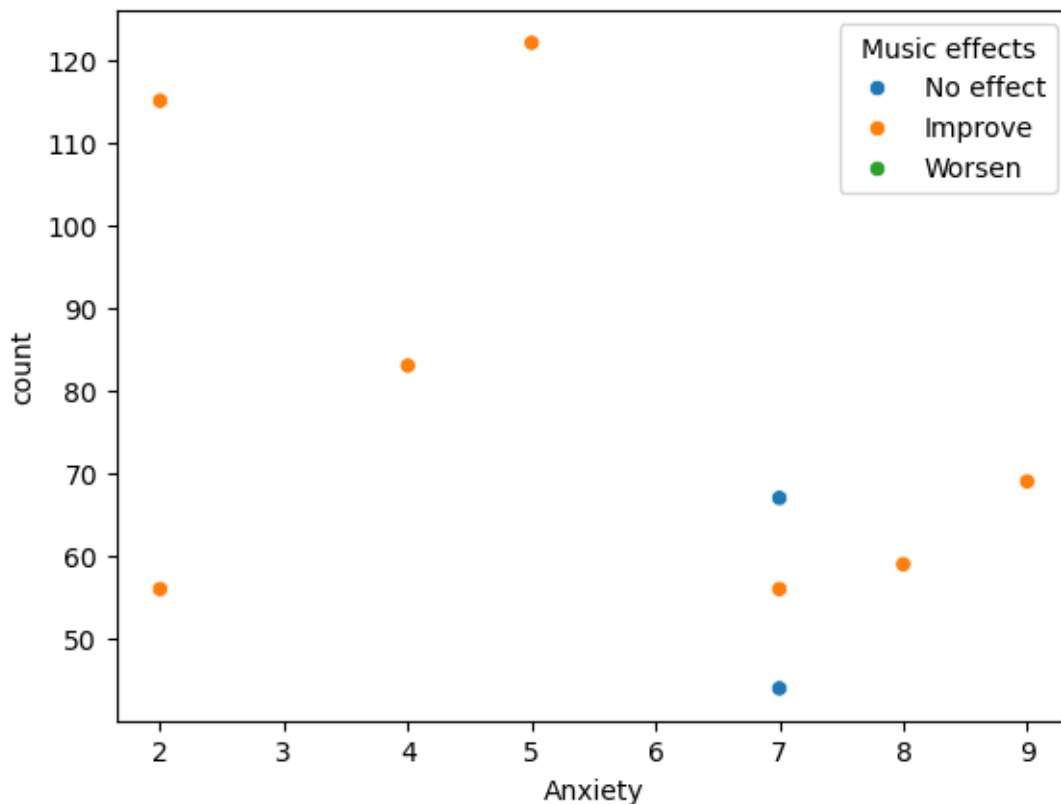
According to the CDC Anxiety disorders and depression are the top two most common mental illnesses affecting Americans followed by others like PTSD. The statements, “In 2019, 301 million people were living with an anxiety disorder,” and “In 2019, 280 million people were living with depression,” demonstrates the recorded number of people who experienced mental illnesses related to depression and anxiety.

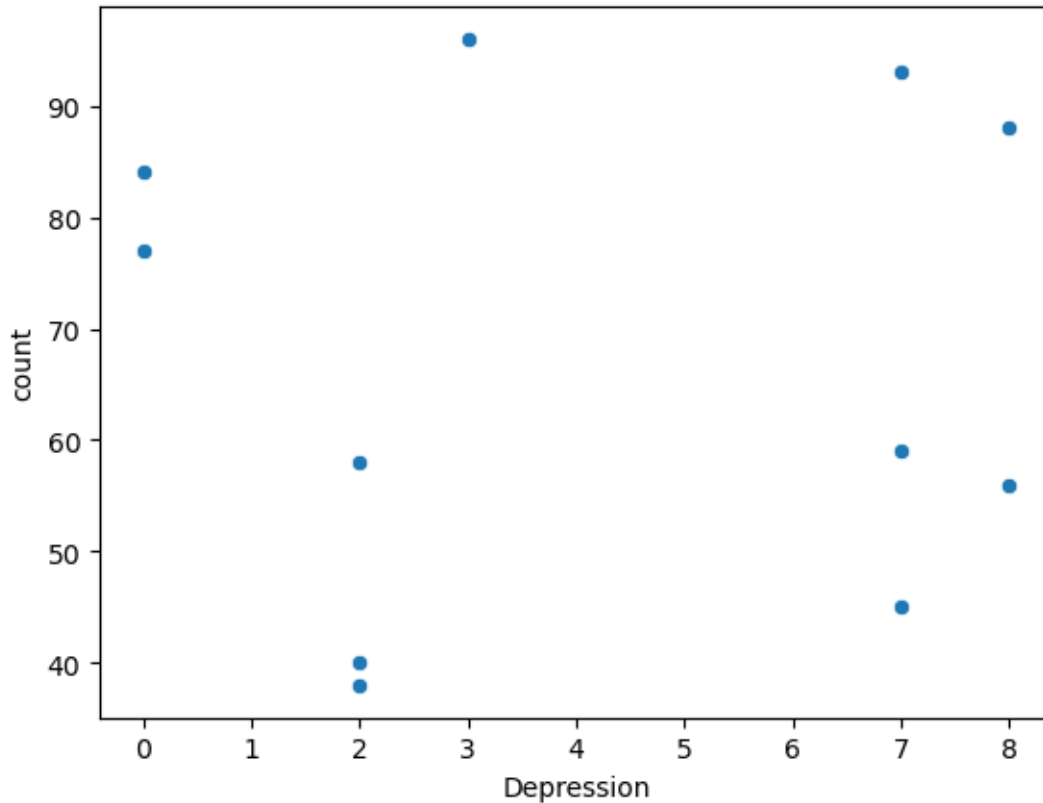
```
[17]: anxiety_count = data['Anxiety'].value_counts()
      depression_count = data['Depression'].value_counts()

      plt.figure()
      sb.scatterplot(x = data['Anxiety'], y = anxiety_count, hue = data['Music_
      ↪effects'])

      plt.figure()
      sb.scatterplot(x = data['Depression'], y = depression_count)
```

```
[17]: <Axes: xlabel='Depression', ylabel='count'>
```





In relation to the CDC article, above are scatterplots for the self reported cases from the survey for Anxiety and Depression respectively rated on a scale from 0 - 10. Highlighted points show results from people who claimed music helps with their Anxiety or Depression, majority of the dots being orange which represents music improved their symptoms of their respective mental illnesses. This shows a relation between the self reported cases of Anxiety and Depression along with music helping in accordance to the CDC article.

2.0.7 Impact

Overall the impact of this research and information can show how simple and close help for people suffering from mental illnesses. Though it may be limited it provide a source of assistance for people to dive into, potentially finding a new hobby or way to distract themselves from their respective illness symptoms. A harm that I see from my visualizations is that some are maybe too “scarce”. Part of the reason this is so is that the data is straightforward in a sense that it answers the general question of, if music helps with mental illnesses. A missing perspective that I think is missing from this data that could be included is asking if the respondents already receive professional help or treatment for their illnesses along with using music to alleviate some of their symptoms and helping them cope with the issues they face. This aspect could be included to compare whether or not if music combined with professional help actually helps or if one or the other could be doing more than the other.

2.0.8 Sources

<https://www.kaggle.com/datasets/catherinerasgaitis/mxmh-survey-results>

World Health Organization. (2022, June 8). Mental disorders. World Health Organization.
<https://www.who.int/news-room/fact-sheets/detail/mental-disorders>