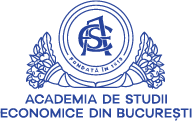
**The impact of music on mental health**

**Project realized by Nanciu David & Popa Florian (group 1036)**

**Scientific leader: Manta Eduard**



**INTRODUCTION**

Music is a fundamental aspect of human life and has been used for centuries to express feelings and emotions, to entertain, and to communicate. Beyond its aesthetic and artistic value, music has also been shown to have significant effects on mental health, both in terms of prevention and treatment. This project aims to explore the impact of music on mental health and to provide a comprehensive overview of the research conducted in this field.

Mental health disorders are a significant health concern affecting millions of people worldwide. According to the World Health Organization (WHO), one in four people will be affected by a mental or neurological disorder at some point in their lives. The prevalence of mental health disorders has been steadily increasing, and as such, there is a growing need for effective prevention and treatment strategies.

Music is one of the most widely used and accessible tools for promoting mental health and well-being. It has been found to have a range of positive effects on mental health, including reducing symptoms of depression and anxiety, improving mood and emotional regulation, enhancing cognitive function, and promoting social connectedness.

The impact of music on mental health has been the subject of extensive research in recent years. Numerous studies have examined the mechanisms through which music affects mental health and have investigated the effectiveness of music-based interventions for various mental health conditions.

**LITERATURE REVIEW**

By using the website: [**https://scholar.google.com/**](https://scholar.google.com/), we identified five articles regarding our chosen topic. These articles are either books or studies made by scientists over the last five years.

* The first article we found is “Music therapy for depression” by Sonja Aalbers, Laura Fusar-Poli, Ruth E Freeman. The article is a study made by researchers in order to prove that music may help in improving mood through emotional expression. There were nine studies with a total of 421 people of any age group (from adolescents to older people). Studies compared the effects of music therapy versus treatment as usual, and versus psychological therapy. Additionally, they examined the differences between two different forms of music therapy: active (where people sang or played music) and receptive (where people listened to music).

They found out that music therapy plus treatment as usual is more effective than treatment as usual alone. Music therapy seems to reduce depressive symptoms and anxiety and helps to improve functioning (e.g., maintaining involvement in job, activities, and relationships). The small numbers of identified studies and participants made it hard to make a confident comparison between different forms of music therapy, but yet, the music therapy showed good results in fighting with depression.

Music therapy for depression is likely to be effective for people in decreasing symptoms of depression and anxiety. Music therapy also helps people to function in their everyday life. However, their findings are not complete and need to be clarified through additional research.

* The second article is called “Music therapy for stress reduction: a systematic review and meta-analysis” and is created by Martina de Witte, Ana da Silva Pinho, Xavier Moonen, Arjan E.R Bos & Susan van Hooren. They stated that stress is a well-known risk factor for the onset and progression of a range of physical and emotional problems, such as cardiovascular diseases, cancers, anxiety disorders, depression, burnout. The presented study shows that “for decades and all over the world, music has been used to provide calmness and relaxation. These stress reducing qualities are the most widely studied effects of music. Music therapy is characterized by using the specific qualities of music in a therapeutic relationship with a music therapist. This distinguishes music therapy from other music interventions, mostly offered by medical or healthcare professionals and referred to as music medicine. In order to integrate the available knowledge on the effects of music therapy on stress, the researchers conducted a systematic review and meta-analysis of quantitative studies testing the effects of music therapy on both physiological and psychological stress-related outcomes in mental and medical healthcare settings. Overall, there was found a significant medium – to – strong effect of music therapy on stress-related outcomes, indicating that participants receiving music therapy benefited more than controls. The researchers concluded that music therapy is effective in reducing stress-related symptoms in both mental healthcare and medical settings.
* The third article is called “Music therapy and Alzheimer’s disease: Cognitive, psychological and behavioural effects” created by M. Gomez Gallego. Forty-two patients with mild to moderate Alzheimer disease (AD) underwent music therapy for 6 weeks. The changes in results on the Mini-Mental State Examination, Neuropsychiatric Inventory, Hospital Anxiety and Depression Scale and Barthel Index scores were studied. Also, there was analyzed whether or not the changes were influenced by the degree of dementia severity.

The results showed up that there was a significant improvement that was observed in memory, orientation, depression and anxiety (HAD scale) in both mild and moderate cases, in anxiety (NPI scale) in mild cases; and in delirium, hallucinations, agitation, irritability, and language disorders in the group with moderate AD. The effect on cognitive measures was appreciable after only 4 music therapy sessions.

The conclusions from the sample studied is that music therapy improved some psychological, and behavioural alterations on patients with AD. Combining music therapy with dance therapy to improve motor and functional impairment would be and interesting line of research.

* The fourth article found on google scholar is “Effect of music therapy on improving sleep quality in older adults: A systematic review and meta-analysis” which was created by multiple Chinese researchers. The study aimed to conduct a systematic review and meta-analysis of the effect of listening to music on sleep quality in older adults. There were five databases that were searched in other to identify studies assessing the efficacy of music therapy in older adults aged 60 years and older published through February 20, 2021.The participants were adults aged 60 years and older. The subgroup analysis revealed that older adults who listened to sedative music obtained a more effective improvement in sleep quality than those who istened to rhythm-centered music. Furthermore, listening to music for longer than 4 weeks was to be effective at improving sleep quality.

The conclusion of this study was that Music therapy is safe and easy to administer and can effectively improve sleep quality among older adults, particularly those listening to more sedative music for at least a four-week duration.

* The fifth and final study found was “Music therapy for children and adolescents with behavioural and emotional problems: a randomised controlled trial” created by Sam Porter, Tracey McConnell, Katrina McLaughlin, Fiona Lynn, Christopher Cardwell. The method used was the following: Two hundred and fifty-one child (8-16 years) and parent couples from six Child and Adolescent Mental Health Service community care facilities in Northern Ireland were randomly assigned to 12 weekly sessions of MT plus usual care [n = 123; 76 in final analyses] or usual care alone [n = 128; 105 in final analyses]. Follow-up occurred 13 and 26 weeks after randomization. At 13 weeks, the primary objective was an increase in communication (Social Skills increase System Rating Scales) (SSIS). Social functioning, self-esteem, depression, and family functioning were all secondary outcomes. After the 26 weeks, for participants aged 13 and over, the communication was significantly improved. Overall, self-esteem was significantly improved and depression scores were significantly lower at week 13. There was no significant difference in family or social functioning at week 13.

**Presenting the methodology & Data used**

Our objective is to prove that Music Therapy is improving physical, emotional, cognitive, and social functioning. It is a form of therapy that can be used to help people of all ages and backgrounds, and it can be beneficial for a variety of reasons.

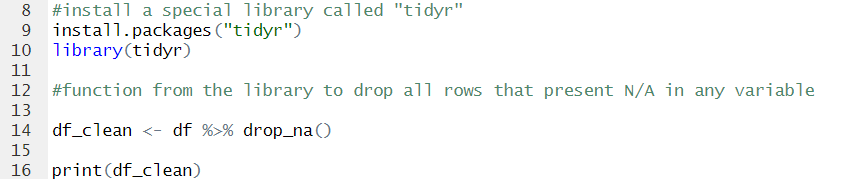
We gathered the data via <https://www.kaggle.com> which was also the main and single source we used. The data was extracted from a Google Survey that had been completed by over 700 participants from all around the world in 2022. They were asked different questions ( from age to favorite genre) in order to create a complete survey that will strongly help us to prove the benefit of MT.

**Data Cleaning**

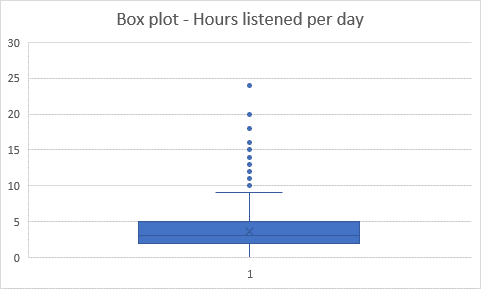
Our dataset presents columns ( timestamp and permissions ) that do not show us any important information, so we decided to delete them. The timestamp variable might be important if we consider that the moment when the survey was taken influences the result of it, but we decide to ignore it since besides timestamp, there might be other factors that influence the result that are not in the dataset.



We also decided to remove the rows that have missing information since it will not help us in our analysis.



Also we should remove any outliers when it comes to the number of hours listened per day. So from the boxplot we delete any person with over 10 hours listened per day.



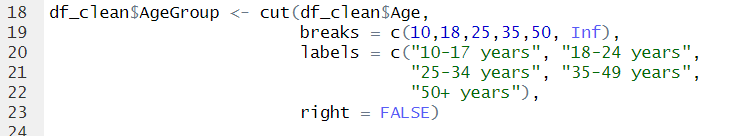


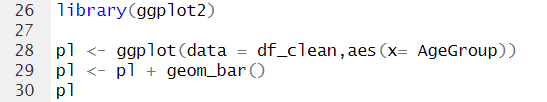
Even if we have less individuals in our sample ( 599 ), data cleaning is an important step since it ensures that the data is accurate and also cost effective !

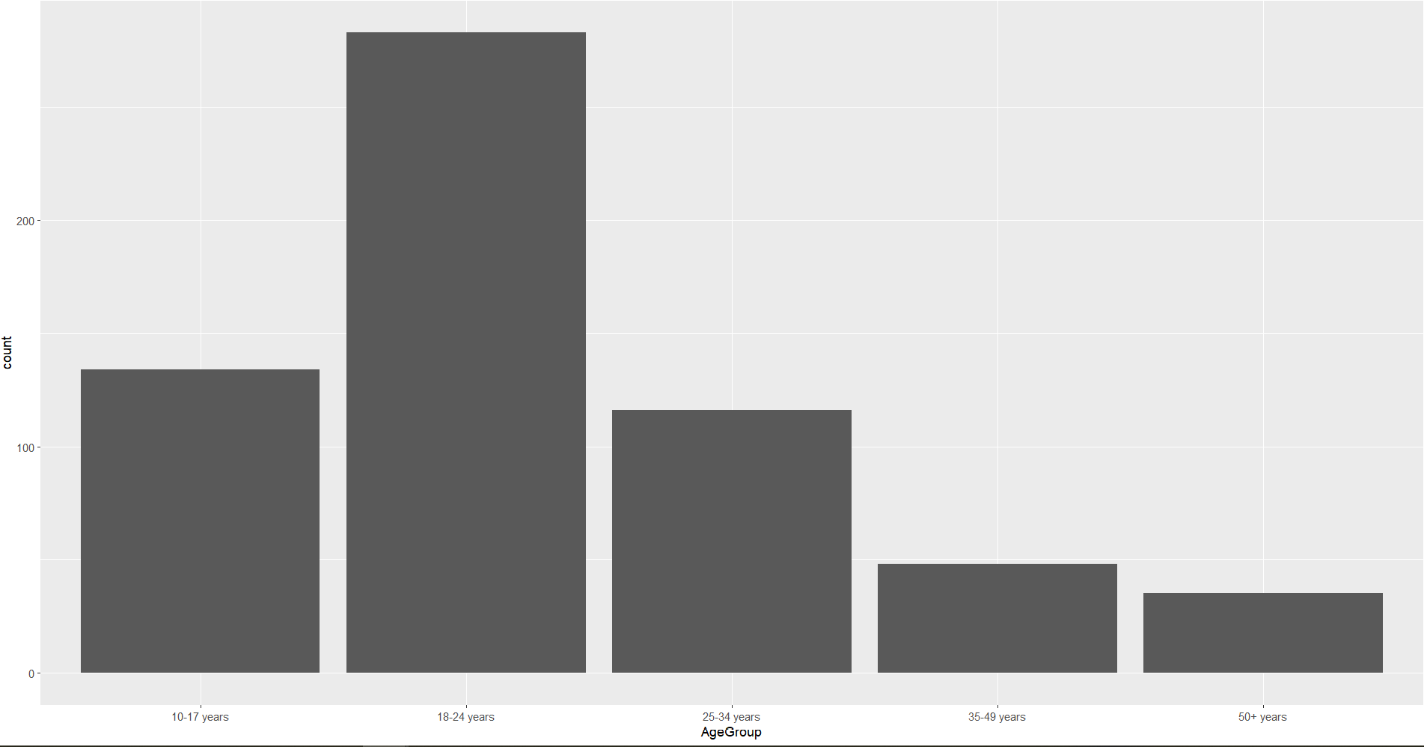
According to Forbes, “dirty data cost companies 12% of their overall revenue”. Our analysis can produce reliable results only if the data that we are using is considered “good” data.

**Stratified Random Sampling**

This method ensures diversity in our sample and similar variance since we will select similar sample size from each strata. Our approach will be to stratifiy according to age.

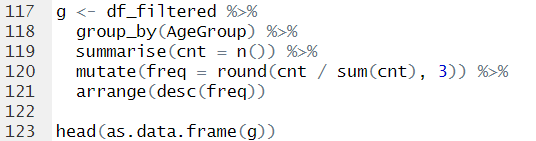






Using a proportional allocation approach, we ensure that each subgroup is adequately represented in the result, enhancing precision and enabling fair comparisons and analysis across strata.

Now to calculate the represented percentage of each group in the data set:



Age Group cnt freq

1 18-24 years 276 0.461

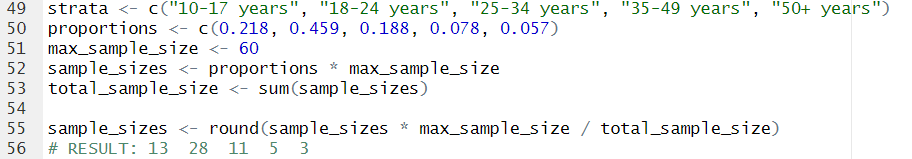
2 10-17 years 128 0.214

3 25-34 years 114 0.190

4 35-49 years 48 0.080

5 50+ years 33 0.055

So the result indicates that most of individuals fall in the 18-24 category ( 46.1% ). The rest of the results are: 10 – 17 years ( 21.4% ), 25 – 34 years ( 19% ) , 35 – 49 years ( 8% ), 50+ years ( 5.5% ). We followed a proportional allocation approach.



As we can see for a sample of 60 individuals we have to choose:

1. 10 - 17 years => 13 individuals
2. 18 - 24 years => 28 individuals
3. 25 - 34 years => 11 individuals
4. 35 – 49 years => 5 individuals
5. 50 + => 3 individuals

We created a sample of 60 observations. The number of observations in each sample of each strata is proportional to the proportion of each category.



We exported the sampled data frame to a .csv file so we can work with it in excel also.

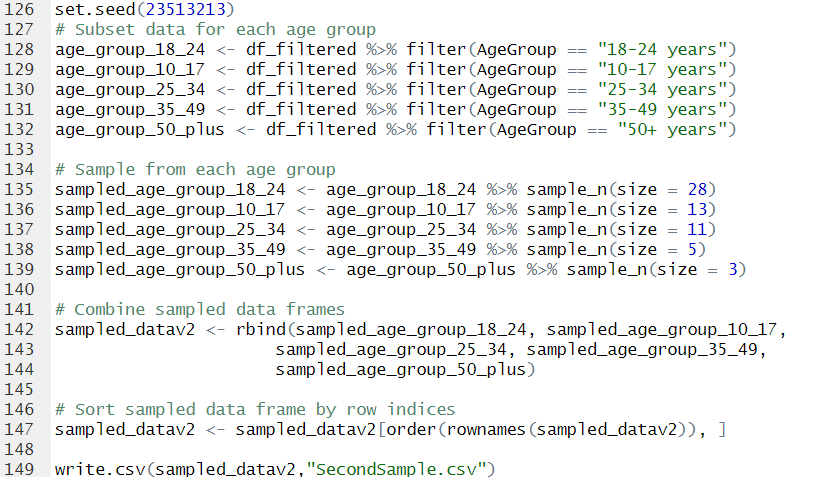


Now let’s create the confidence intervals for the number of hours of music listened per day based on each age category.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Idx** | **10-17 yrs** | **18-24 yrs** | **25-34 yrs** | **35 - 49 yrs** | **50+ yrs** | **Full sample** |
| Alpha | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Std. dev. | 2.0731804 | 2.1140591 | 1.8973666 | 1.09544512 | 1 | 1.95796216 |
| Size | 13 | 28 | 11 | 5 | 3 | 60 |
| Mean | 3.1153846 | 3.4464286 | 3 | 2.2 | 2 | 3.116666667 |
| SEM | 1.126973 | 0.7830441 | 1.1212514 | 0.96018234 | 1.131586 | 0.495423679 |
| Bottom Conf. Interval | 1.9884116 | 2.6633845 | 1.8787486 | 1.23981766 | 0.868414 | 2.621242988 |
| Upper Conf. Interval | 4.2423576 | 4.2294726 | 4.1212514 | 3.16018234 | 3.131586 | 3.612090346 |

We can state that with 95% confidence that the mean of hours listened of any age group will fall into the interval [2.62 – 3.61].

Let’s try with another sample. We have to choose another seed, since it influences the random individuals that are selected for the sample.



And the confidence intervals:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Idx** | **10-17 yrs** | **18-24 yrs** | **25-34 yrs** | **35 - 49 yrs** | **50+ yrs** | **Full sample** |
| Alpha | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Std. dev. | 2.415229 | 1.965981 | 3.113023 | 2.073644 | 2.309401 | 1.957962 |
| Size | 13 | 28 | 11 | 5 | 3 | 60 |
| Mean | 4 | 2.928571 | 4.090909 | 2.9 | 5.333333 | 3.116667 |
| SEM | 1.31291 | 0.728196 | 1.839645 | 1.817596 | 2.613285 | 0.495424 |
| Bottom Conf. Interval | 2.68709 | 2.200375 | 2.251264 | 1.082404 | 2.720048 | 2.621243 |
| Upper Conf. Interval | 5.31291 | 3.656767 | 5.930554 | 4.717596 | 7.946619 | 3.61209 |

We can state with 95% confidence that the mean of hours of music listened will fall into the interval [2.62 – 3.61]. Which is the same interval with the other sample if we approximate to the first 2 decimals. Pure luck since the confidence intervals of individual age groups are different.

We observed that with a smaller sample size, the confidence interval increased in size because there is a smaller error in our calculations.

Since only 60 individuals do not represent the real entire population, using the whole sample of 599 individuals will result in more accurate results.

To obtain a better understanding of the true population confidence interval, we should also calculate for the entire sample of 599 individuals.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Idx** | **10-17 yrs** | **18-24 yrs** | **25-34 yrs** | **35 - 49 yrs** | **50+ yrs** | **Full sample** |
| Alpha | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| Std. dev. | 2.341868 | 2.307842 | 2.366691 | 1.982609 | 2.064422 | 1.957962 |
| Size | 127 | 277 | 114 | 48 | 33 | 599 |
| Mean | 3.538462 | 3.357143 | 4.045455 | 4.1 | 2.333333 | 3.116667 |
| SEM | 0.407295 | 0.271778 | 0.434447 | 0.560873 | 0.704352 | 0.156797 |
| Bottom Conf. Interval | 3.131167 | 3.085365 | 3.611007 | 3.539127 | 1.628982 | 2.959869 |
| Upper Conf. Interval | 3.945756 | 3.628921 | 4.479902 | 4.660873 | 3.037685 | 3.273464 |

*What if we change the confidence level ?*

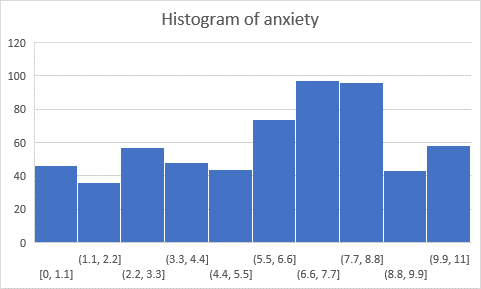
|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Idx** | **10-17 yrs** | **18-24 yrs** | **25-34 yrs** | **35 - 49 yrs** | **50+ yrs** | **Full sample** |
| Alpha | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Std. dev. | 2.341868 | 2.307842 | 2.366691 | 1.982609 | 2.064422 | 1.957962 |
| Size | 127 | 277 | 114 | 48 | 33 | 599 |
| Mean | 3.538462 | 3.357143 | 4.045455 | 4.1 | 2.333333 | 3.116667 |
| SEM | 0.535276 | 0.357177 | 0.570961 | 0.737112 | 0.925675 | 0.206067 |
| Bottom Conf. Interval | 3.003186 | 2.999966 | 3.474494 | 3.362888 | 1.407658 | 2.9106 |
| Upper Conf. Interval | 4.073737 | 3.71432 | 4.616415 | 4.837112 | 3.259008 | 3.322733 |

We can state that with 99% confidence that if we take another sample of 599 individuals, the average number of hours listened will fall in the interval [2.91 – 3.32], also with 95% confidence that it will fall in [2.95 – 3.27].

With these results, we can state that music is part of our life, 3 hours on average is a good guess since a lot of people listen to music when driving, taking a shower, cleaning, walking to work or when they are just relaxing. Individuals which are 50 + years old are listening to music far less

that young people, having the lowest bottom interval with 1.40 hours on average. The upper limit of 3.25 being close to the lower limit of other age groups. The reasons might be the technological barriers, since young people know how to access unlimited songs in a few seconds, old people rely on radios or TV’s, also older people may have a stronger connection with music from their youth, leading them to not resonate with the music from the present. This in combination with not being sufficiently capable to access technology to find their preferred music leads to reduced consumption of music.

**Hypothesis testing**



***Hypothesis number #1.***

Looking at our histogram of anxiety scores, we will select only classical music listeners and see if their anxiety score is below the average of the total sample.

We selected only individuals which stated that their preferred music genre is classical.

The average anxiety score of the total sample is 5.90. So we state the following:

* H0: μ >= 5.90
* H1: μ < 5.90
* x̄=5.18
* s.d.=2.67
* α=0.05, the confidence interval is equal to 95%
* n=37

We don’t have any information about the standard deviation of the total population so we are going to use a one-sided lower tail t-test.

Based on the t-value of -1.616, which falls below the critical t-value of 1.688 (with 37 degrees of freedom), we have sufficient evidence to reject the null hypothesis.

Therefore, we conclude that there is statistical evidence to suggest that the mean anxiety score of classical music listeners is lower than 5.90. In other words, classical music listeners tend to have lower anxiety scores compared to the average anxiety score of the total sample.

***Hypothesis number #2 two-tailed test***

* H0: μ = 5.90
* H1: μ != 5.90
* x̄=5.18
* s.d.=2.67
* α=0.1, the confidence interval is equal to 90%
* n=37

*t-value remains the same ( - 1.616 ). So we reject H0 if t value is larger than critical value or if h0 is less that minus critical value. The critical value is 1.688 so :*

-1.616 < 1.688 and -1.616 > -1.688

We do not reject the null hypothesis. The average anxiety score of classical music listeners is not equal to the average anxiety score of listeners of all music genres.

So, in conclusion, classical music may have a positive impact on the anxiety of a person. As shown in other studies, classical music can act as “a calming agent on the body and mind”, so if you ever want to calm down or feel better, you should try to listen to Tchaikovsky or other great composers !

**ANOVA**

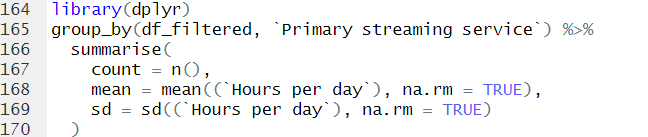
Our objective is to find out if music and implicit the streaming platform has an effect on people when it comes to insomnia. It is really important since is sleep is a core and vital body function which rebuilds our body and prepares us for the next day. Also with this test we can find out if a streaming platform has a better algorithm to keep the user engaged, since we know that some companies uses specific techniques to keep you using the app. So testing if the number of hours and insomnia score is the same for any platform of streaming is a good start !

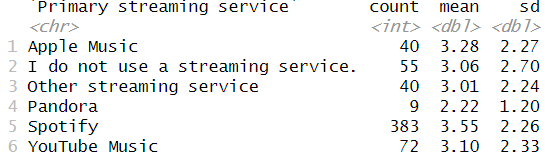
#1

*H0: The average number of hours is equal for any platform of streaming.*

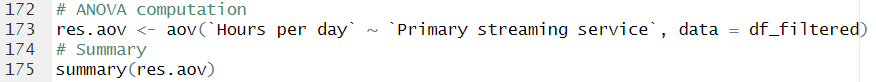
*H1: The average number of hours is not equal for any platform of streaming.*

To better understand the model we computed summary statistics for each level ( streaming device ).





**Now let’s calculate ANOVA**



Df Sum Sq Mean Sq F value Pr(>F)

`Primary streaming service` 5 40.4 8.085 1.525 0.18

Residuals 593 3143.4 5.301

The p-value is 0.18 so the interpretation is that there is not enough statistical evidence to reject the null hypothesis so we conclude that there may be or may be not a difference between the number of hours of music listened according to the streaming platform.

#2

*H0: The average score of insomnia is equal for any platform of streaming.*

*H1: The average score of insomnia is not equal for any platform of streaming.*

Summary statistics:  
 `Primary streaming service` **count mean sd**

1 Apple Music 40 3.6 3.00

2 I do not use a streaming service. 55 4.16 3.40

3 Other streaming service 40 3.82 3.24

4 Pandora 9 2 3.16

5 Spotify 383 3.80 3.06

6 YouTube Music 72 3.51 3.01

Df Sum Sq Mean Sq F value Pr(>F)

`Primary streaming service` 5 43 8.603 0.898 0.482

Residuals 593 5680 9.578

Again thre is not enough statistical evidence to reject the null hypothesis.

#3

*H0: Those who never listen, sometimes listen or frequently listen to classical music have the same avg. anxiety score*

*H1: Those who never listen, sometimes listen or frequently listen to classical music do not have the same avg. anxiety score*

`Frequency [Classical]` count mean sd

1 Never 135 5.97 2.73

2 Rarely 218 5.87 2.77

3 Sometimes 162 6 2.80

4 Very frequently 84 5.68 2.72

Df Sum Sq Mean Sq F value Pr(>F)

`Frequency [Classical]` 3 7 2.204 0.289 0.833

Residuals 595 4535 7.621

Again there is not enough statistical evidence to reject the null hypothesis.

#4

*H0: Those who never listen, sometimes listen or frequently listen to video games music have the same avg. anxiety score*

*H1: Those who never listen, sometimes listen or frequently listen to video games music do not have the same avg. anxiety score*

`Frequency [Video game music]` count mean sd

1 Never 186 4.57 3.09

2 Rarely 167 4.76 2.96

3 Sometimes 154 5.42 2.72

4 Very frequently 92 4.75 3.10

Df Sum Sq Mean Sq F value Pr(>F)

`Frequency [Video game music]` 3 66 22.037 2.505 0.0582 .

Residuals 595 5234 8.797

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Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

As we can see we have a p-value less than 0.1% which means that we can state with 90% confidence that there is a statistical difference in depression score for individuals which never, rarely, sometimes or frequently listen to video game music. Maybe the statistic could be improved if we considered sometimes and very frequently as active listeners and never and rarely as inactive listeners such that we could get a higher confidence level that our assumption is true. Often in studies, it was found that video games could lead to depression in young adults because of sedentary and social isolation which greatly affects happiness in individuals.

**Simple Regression**

#1

How streaming devices and number of hours affect insomnia

Based on the linear regression summary provided, the relationship between the variables "Hours per day" and "Insomnia" can be assessed. Here are a few key points to consider:

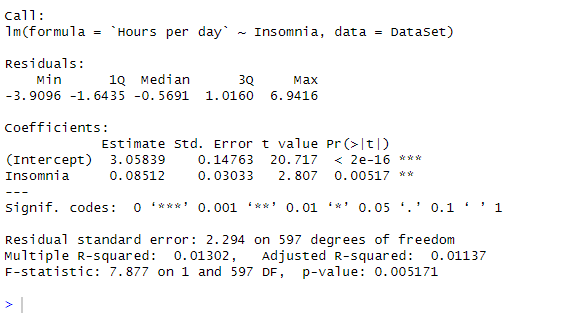
**Coefficients:** The coefficient for the "Insomnia" variable is estimated to be 0.08512. This coefficient represents the expected change in the "Hours per day" variable for a one-unit increase in "Insomnia."

**Significance:** The coefficient for "Insomnia" is statistically significant with a p-value of 0.00517. This indicates that there is evidence to suggest that the "Insomnia" variable is related to the "Hours per day" variable.

**Interpretation:** Given that the coefficient for "Insomnia" is positive, we can interpret it as follows: On average, for each one-unit increase in "Insomnia," there is an expected increase of 0.08512 units in "Hours per day." However, it's important to note that the coefficient is relatively small.

**R-squared:** The R-squared value is 0.01302, which means that approximately 1.3% of the variance in "Hours per day" is explained by the "Insomnia" variable. This suggests that the linear relationship between the two variables is weak.

Considering these findings, it appears that there is a statistically significant but weak positive relationship between "Insomnia" and "Hours per day." However, the small R-squared value indicates that the "Insomnia" variable explains only a small proportion of the variability in "Hours per day." It's crucial to interpret these results in the specific context of your data and research question.



Count-data regression!

**Multiple Regression**

The console output provides information about the multiple linear regression model with "Insomnia" as the dependent variable and "Hours per day" and "Composer" as the independent variables. Let's interpret the key components of the output:

**1. Residuals:**

* Residuals are the differences between the observed values and the predicted values from the regression model.
* The summary displays statistics for the residuals, such as minimum (Min), 1st quartile (1Q), median, 3rd quartile (3Q), and maximum (Max).
* These statistics provide insights into the spread and distribution of the residuals.

**2. Coefficients:**

* Coefficients represent the estimated effect of each independent variable on the dependent variable.
* In this case, the intercept (represented by `(Intercept)`) is estimated to be 3.17178.
* The coefficient for the `Hours per day` variable is estimated to be 0.14104.
* The coefficient for the `ComposerYes` variable is estimated to be 0.67182.
* Each coefficient also has associated statistics such as the standard error, t-value, and p-value.

**3. Significance codes:**

* The significance codes provide a way to interpret the statistical significance of the coefficients.
* The number of asterisks (\*) indicates the level of significance.
* In this case, the intercept, `Hours per day`, and `ComposerYes` coefficients are significant at the 0.001, 0.05, and 0.05 levels, respectively.

**4. Residual standard error:**

* The residual standard error is an estimate of the standard deviation of the residuals.
* In this case, the residual standard error is 3.068.

**5. Multiple R-squared and Adjusted R-squared:**

* The multiple R-squared represents the proportion of variance in the dependent variable explained by the independent variables.
* In this case, the multiple R-squared is 0.01951, indicating that approximately 1.95% of the variance in "Insomnia" is explained by the "Hours per day" and "Composer" variables.
* The adjusted R-squared adjusts the multiple R-squared value based on the number of predictors.
* In this case, the adjusted R-squared is 0.01622.

**6. F-statistic and p-value:**

* The F-statistic measures the overall significance of the model.
* The p-value associated with the F-statistic determines whether the model is statistically significant.
* In this case, the F-statistic is 5.93, indicating that the model as a whole is statistically significant (p-value = 0.002817).

Remember, when interpreting a multiple linear regression summary, it's important to consider the context of the variables and the specific research question or hypothesis being investigated.

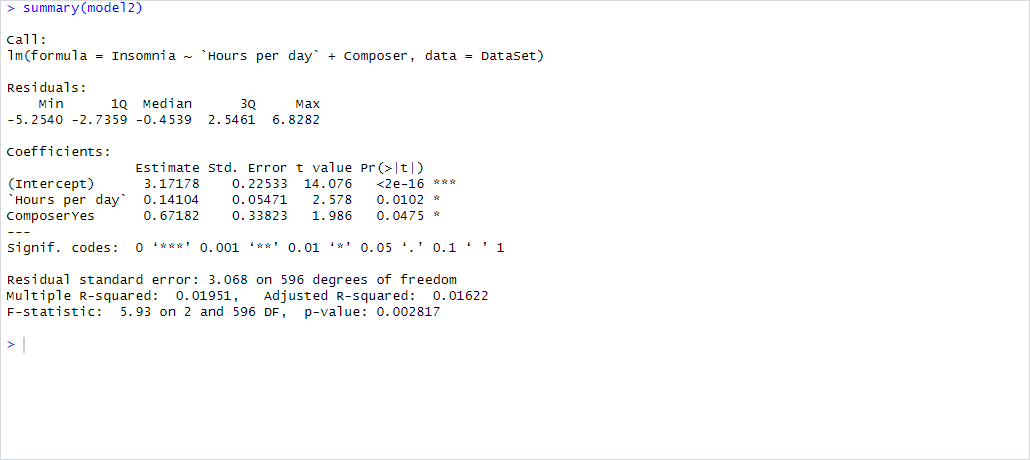
Based on the provided output, **here is a simplified conclusion**:

The multiple linear regression analysis suggests that the variables "Hours per day" and "Composer" have some statistical significance in explaining the variation in the "Insomnia" variable.

* The coefficient for "Hours per day" suggests that, on average, for each additional hour per day spent on the primary streaming device, there is an expected increase of 0.14104 units in the level of insomnia.
* The coefficient for "Composer" suggests that, on average, if the individual identifies as a composer, there is an expected increase of 0.67182 units in the level of insomnia compared to those who do not identify as composers.

However, it is important to note that the model explains only a small proportion of the variation in insomnia, as indicated by the low multiple R-squared value (0.01951). Other factors not included in the model may also contribute to the occurrence of insomnia.

Further analysis and consideration of additional variables may be necessary to obtain a more comprehensive understanding of the factors influencing insomnia.



**Conclusion**

In recent years, research has increasingly shown that music can have a significant impact on mental health. Studies have demonstrated that music can reduce symptoms of anxiety, depression, and stress, and can even improve cognitive function and memory recall. In this project, we set out to explore the impact of music on mental health, and our statistical analysis revealed compelling evidence to support its therapeutic potential.

***What did we learn?***

Our research has shown that music has a wide range of positive effects on mental health. For instance, studies have found that listening to music can reduce symptoms of anxiety in both clinical and non-clinical populations. Similarly, music has been shown to be effective in reducing symptoms of depression, particularly in conjunction with other therapies such as psychotherapy or medication. Additionally, music has been found to be a useful tool for managing stress, improving mood, and enhancing overall well-being.

In particular, our research has highlighted the importance of individual differences in responding to music. For example, the type of music that is most effective in reducing anxiety or improving mood may vary depending on the individual. This underscores the importance of personalized treatment approaches that take into account the unique needs and preferences of each individual.

***How should we treat this subject in the future?***

Moving forward, it is crucial that we continue to explore the potential of music as a therapeutic tool in mental health treatment. This will require further research to better understand the mechanisms by which music affects mental health, as well as efforts to increase access to music-based interventions for those in need. Additionally, healthcare professionals should be encouraged to incorporate music into their treatment plans for mental health patients, and to educate patients on the benefits of music for mental health.

***Is music one of the best things created?***

Our research suggests that music is indeed one of the best things created, particularly in its ability to positively impact mental health. This is due to its unique ability to evoke emotions, promote relaxation, and even stimulate cognitive function. As such, music has become an increasingly popular complementary therapy for a wide range of mental health conditions, and is often used in conjunction with other therapies such as psychotherapy, medication, or mindfulness-based interventions.

***How can we appreciate music more?***

To fully appreciate the potential of music for mental health, it is important to approach it with an open and curious mind. This means actively seeking out new music that speaks to you, experimenting with different types of music to determine what is most effective for you, and incorporating music into your daily self-care routine. Additionally, attending concerts, participating in music-making activities, and exploring the cultural and historical significance of different types of music can deepen our appreciation of its power and potential.

In conclusion, our research has demonstrated the significant impact of music on mental health, highlighting its potential as a complementary therapy for a wide range of mental health conditions. Moving forward, it is crucial that we continue to explore the potential of music-based interventions for mental health, and to integrate music into our daily lives for improved well-being.

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