The Impact of Demographic Factors and Music Genre Daily Listening Time Among Young Adults

A Project Report Submitted for the Partial Fulfilment of the

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(Full-time) Programme

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Abstract

Music is an important factor influencing emotions and social interactions. This study examines how demographic factors and music genre preferences influence daily music listening time among young adults. The test focusses on students aged 18 to 25 who are involved in various degrees at the National Innovation Center. Primary data collection is done using a survey-based approach. A sample size of 200-250 respondents is expected to be collected using data tools such as Google Forms and shared across campus communication channels and groups.

Statistical methods such as one – way ANOVA, independent sample t –test was used to analyze the differences between music genres and demographic factors on music listening time. Additionally, various graphical methods will be used to visualize the data. These findings are expected to provide insight into young adults' music consumption behaviors and to better understand listening habits for educators involved in music platforms. Ultimately, this research contributes to a border understanding of how demographic factors shape music engagement in a given environment.

Key words: Demographic Factors, Music Preferences, Young Adults, Music Genres, Daily Listening Time

We hereby confirm that this project report is the result of our collaborative efforts. We have diligently cited the work of others and provided proper references where required.

Sandas Wijethunga   Imal Nuwanjana   Hiruna Aththanayaka

17/03/2025   17/03/2025   17/03/2025

I confirm that the students mentioned above completed their project under my supervision and guidance.

Ms. Chamilanka Wanigasekara

17/03/2025

Dedication

The National Innovation Centre and Director of Innovation Humanities and Linguistics Dr. K. D.S. N. Wijayasiri receives this study recognition together with our educational staff members Mr. D. D. A. Arthanayake, Ms. W. M. S. G. D. C. Wanigasekara and Ms. J. B. Don Paul. The teachers proved essential to the development of our academic path through their constant mentorship and professional support and cultivated encouragement. The educational dedication they display has led us to aim for excellence in research and in all our endeavors.

We show this dedication toward all research participants from the National Innovation Centre student community. The research success has proven vital for delivering valuable understanding to the project.

Acknowledgement

The lecturers provided us irreplaceable guide and support combined with encouragement throughout the entire research process. We give our warmest appreciation to our supervisor Ms. W. M. S. G. D. C. Wanigasekara for her support since the initial stages of this project. We express deep appreciation to Mr. D. D. A. Arthanayake and Ms. J. B. Don Paul for their vital assistance that involved error detection in our work and submission refinement. We express our sincere appreciation to Dr. K. D./S. N. Wijayasiri who spent his time instructing us about report organization and fundamental elements. Our team extends

recognition to everyone who took part in the survey because their responses proved vital to achieving study success.

Executive Summary

A study investigates how demographic elements and musical taste choice influence the musical habits of youth between 18 and 25 years old who attend the National Innovation Centre. The researchers conducted surveys with 200-250 participants through Google Forms. Analysis was conducted using one-way ANOVA combined with independent sample t-tests together with graphical methods to determine differences in listening duration by various demographic and musical preference characteristics.

Research results show academic discipline has an impact on daily listening habits but music preference group does not influence this data. Students who enrolled in Psychology and Counseling disciplines spent the greatest amount of time listening to music but students from Interior Architecture showed the least interest. Researchers discovered that gender does not impact musical habits of individuals.

Research findings help widen knowledge about young adults' music practices that can benefit both educational institutions and music streaming companies along with music consumption investigation teams. Educational institutions should consider implementing music-based educational tools and streaming platforms should tailor their offerings to match students' academic responsibilities.

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Chapter 1: Introduction

1.1 Background

This study investigates the influence of demographic factors and music genres on daily music listening habits among young adults. By understanding these factors, we may appreciate how music consumption differs across groups and the possible impact that may make in shaping social and emotional well-being among young adults.

1.2 Research Problem

Almost all people living in the word listen to music in their day-to-day life. Accordingly, do not know whether factors such as gender, type of degree and favorite music genre influence how much time young adults listen to music per day. This study aims to find out if these factors make a difference

1.3 Research Questions

1. How do music genres influence daily listening time?

2. Is there a significant difference in listening time between male and female listeners?

3. How does a listener's degree type influence their daily listening time?

1.4 Objectives of the Project

Objective: 1

To determine whether there is a significant difference in daily listening time based on favorite music genre among young adults

Objective: 2

To determine whether there is a significant difference in the average time spent listening to music based on demographic factors among listeners

i. To determine whether there is a significant difference in the average time spent listening to music between male and female listeners.

ii. To examine whether there is a significant difference in the average time spent listening to music based on the listener's degree type.

1.5 Scope of the research

This study focuses on gathering data on the listening habits, demographics and preferences of music genres between 18 to 25 years old young adults.

1.6 Justification of the Research

This research on the impact of demographic factors and music genres on daily listening time among young adults is justified, as it will contribute to multiple fields: psychology, education, and the music industry. Understanding Behavior of young adults on music, Contribution to Academic Literature, Implications for Mental Health and Well-being, Supporting Social and Cultural Understanding, Practical Relevance for Campus Life. This research is important for understanding above contents.

1.7 Expected Limitations

- Data may include bias as respondents tend to underestimate or overestimate their listening time.

- The limited sample size does not represent all young adults globally and renders the findings general.

- This study focused on university students and may limit generalizations to non – student young adults.

Recall may affect survey responses as participants may not be able to accurately remember their listening habits.

Chapter 2: Literature Review

2.1 Introduction to the research theme

Music is an important part of human life and it influences the daily routine (Rentfrow & Gosling,2003). Music consumption among young adults has changed significantly, especially with digital platforms (Krause, North & Heritage,2018). Accordingly. Factors such as individual preferences and demographics factors play a critical role in engagement with music (Bonneville-Roussy et al.,2013).

This study focuses on how gender and degree type affect the amount of time young adults spend listening to music. It also explores whether favorite music genres contribute to changes in music listening duration. This study applies to university-based environments and exposed to student's diverse musical preferences.

Examining these factors provides insight into the fields of music industry marketing, media psychology and cultural studies (North & Hargreaves,2007). The findings of this study will help artists and educators involved in music platforms understand the listening habits of young adults and allow for engaging music experiences (Krause & Hargreaves,2013).

2.2 Theoretical explanation about the Key Words in the Topic

Music Genres - A musical classification based on things like rhythm and cultural origin.

Demographic Factors – Describes the characteristics of a person

Daily listening time – The amount of time individuals spend listen to music in a day.

2.3 Finding by other researchers

LeBlanc et al. (1999) conducted research among 8- to 18-year-olds in Greece, Korea, and the United States about their music preferences. Their findings showed that age is a strong factor in the taste for music, with the youngest participants demonstrating a clear predilection for contemporary genres while the older adolescents liked a wide range of musical styles.

Gender Differences in the Habit of Listening to Music: North et al. (2000) conducted research that studied the association of gender with musical preference. Their results indicated that males had more preferences toward musical genres of rock and metal, while females tend to favor pop and R&B. Such differences suggest that musical taste and the duration for which one listens is influenced by one's gender.

Cultural Variations and Influences: This again has been pointed out by LeBlanc et al. in 1999 regarding how cultural background affects music preferences. Large differences among the countries for the preferred music types have evidenced that musical tastes depend a great deal upon their cultural contexts.

Personality Traits and Music Choices: Rentfrow and Gosling (2003) conducted research on personality traits and preferences for music. According to their study, the personality trait of openness to experience is associated with a wide range of music tastes, which could result in more hours spent listening to music daily.

Technological advancements and music platforms: Digital platforms have totally changed the way in which people listen to music. According to Anderson et al. (2020), young adults mainly use music streaming services, such as Spotify and Apple Music, offering

recommendations for personalized playlists that can prolong the time they spend daily in listening to music.

Social Influences on Music Consumption: Lonsdale and North (2011) investigated the role of social factors in music listening. They found that peer groups have a strong impact on individual choices of music, with shared preferences leading to longer listening times within social groups.

Emotional Regulation and Music Use: Saarikallio and Erkkilä, 2007 focused on music's role in the emotional regulation processes of adolescents. Their findings strongly suggest that people engage in music as a mood regulatory strategy, for which there would be significant individual differences in daily listening time based on different needs.

Educational Background and Genre Preferences: Chamorro-Premuzic and Furnham (2007) investigated the role of educational background in shaping preferences for certain types of music. The researchers reported that arts and humanities students like to listen to classical and jazz music, while science students are more interested in rock and pop genres; this fact also influences listening length.

Listening Contexts and Activities: Greasley and Lamont (2011) investigated the different contexts in which people listen to music. Amongst their findings, they noted that activities such as studying, traveling, and working out are quite common contexts accompanying music and, therefore, impacting the daily total listening time.

Health Implications of Prolonged Listening: Kim et al. (2023) researched the effects of long-term listening to music through headphones on the health of hearing. The present study underlined the necessity of tempering listening duration to prevent any potential problems in hearing and postulated that awareness of health implications can influence daily listening duration.

2.4 The research gap

A large number of existing studies have examined how people listen to music. They often focus on general listening habits or preferences. There is not much research on how much time young adults listen to music per day varies by factors such as gender, degree type, or favorite music genre. This study aims to fill that gap by examining whether these factors significantly affect listening time. This provides new insights that could help researchers, educators, and streaming services better understand music consumption.

2.5 Table for Variables, their definitions and sources

Variable	Definition	Source
Age	The respondent's numerical age in years.	Survey
Gender	The respondent's identified gender (Male/Female)	Survey
Favorite Music genre	The specific genre the respondent prefers the most	Survey
Degree Program	The respondent's degree program of study at university	Survey

Number of genres listen to	The number of different music genres the respondent regularly listens to	Survey
Daily listening time	Number of hours spent listening to music daily (validated between 0-24)	Survey
Music Discovery Frequency	How often the respondent discovers new music	Survey
Primary Music Platform	The main platform the respondent uses to listen to music (e.g., Spotify, YouTube, Apple Music)	Survey
Live vs Streaming Preferences	Whether the respondent prefers live concerts or online streaming experiences	Survey
Primary listening Activity	The main activity during which the respondent listens to music (e.g., studying, exercising, commuting)	Survey
Music Motivation	The primary reason the respondent listens to music (e.g., relaxation, motivation, entertainment)	Survey
Music and Mental Health	Whether respondents have noticed an improvement in their mental health after listening to music	Survey

2.6 Chapter Conclusion

This chapter reviewed existing research on music consumption and demographic influences. It summarized previous studies, explained key concepts, and identified gaps in current research. While many studies have explored music preferences and habits, few have examined how factors such as gender, degree type, and favorite genres influence

daily listening time. This study will help address that gap by analyzing these factors in detail. The research methods used to collect and analyze the data will be discussed in the next chapter.

Chapter 3: Methodology

3.1 Introduction

This study uses a structured survey approach to collect data on the listening habits and demographics of young adults. According to the target population, this study has focused on students between the ages of 18 and 25 who are pursuing various degree courses at National Innovation Center. A sample size between 200 to 250 is used for this purpose.

Google Forms is used as a data collection tool. The survey includes questions such as listening time, favorite music genres, demographic factors and music consumption habits and that is distributed through campus social media groups and communication channels.

Both statistical and graphical methods are used to analyze the data. Descriptive statistics such as median, mean, Standard deviation will be used to summarize the data. Statistical tests such as one-way ANOVA, independent sample t test are used to match the objectives. Additionally, visualization techniques will be used to effectively represents trends and distributions.

3.2 Population, Sample and Sampling technique

Population

Young adults age 18 to 25 enrolled at the National Innovation Center.

Sample

The study will involve 200–250 students from diverse educational backgrounds such as data science, interior architecture, fashion design, psychology and counseling.

Sample technique

Convenience Sampling (Survey shared via social media groups, where students voluntarily participate

3.3 Type of Data to be collected and data sources

Primary data through survey

3.4 Data collection tools and plan

Google Forms with demographic and music preference questions.

Expected 200 – 250 respondents

3.5 Conceptual framework

The conceptual framework connects demographic factors and music genres to daily listening time, analyzing their relationships using statistical methods.

3.6 Hypothesis

Objective 1

- Null Hypothesis: The population means of daily listening time among music genres are equal to each other.

- Alternative Hypothesis: At least one of the populations means of daily listening time among music genres are not equal to another.

Objective 2

1) Null Hypothesis: Mean difference of daily listening time between male listeners and female listeners are equal to 0

   Alternative Hypothesis: Mean difference of daily listening time between male listeners and female listeners are not equal to 0

2) Null Hypothesis: The population means of daily listening time among degree types are equal to each other.

   Alternative Hypothesis: At least one of the populations means of daily listening time among degree types are not equal to another.

3.7 Methods of data analysis

- Descriptive statistics
- One-way ANOVA
- Independent sample t-test
- Graphical representations

CHAPTER 4: DATA ANALYSIS

4.1 Data Analysis

In this section, an analysis of the data collected from the sampled population through the constructed questionnaire will be presented.

Data Preprocessing and Manipulation

Data preprocessing and manipulation is a very important step in data analysis that will ensure r accuracy of the data for further analysis.

Identify Missing Values**:** Count the number of missing values (NA) in each column.

```
# Count the number of NAs in each column
na_count <- sapply(df, function(x) sum(is.na(x)))

# Print the result
print("Number of NAs in each column:")
```

```
## [1] "Number of NAs in each column:"
```

```
print(na_count)
```

```
##                          Age                      Gender
##                            0                           0
##               Degree_program         Favorite_music_genre
##                            0                           0
##            No_of_ music_genres         Daily_listening_time
##                            0                           0
##         Primary_Music_Platform Live_vs_streaming_prefrences
##                            0                           0
##      Primary_listening_activity    Music_discovey_preferences
##                            0                           0
##             Music_motivation        Music_and_mental_health
##                            0                           0
```

Figure 1: R code used to find sum of missing values

Detect and Remove Outliers: Next, identified outliers by visualizing the data with a boxplot. Then applied the Interquartile Range (IQR) method to systematically detect and remove these outliers. The IQR method helps in identifying values that fall significantly above or below the typical range.

After applying the IQR method, I removed the outliers from all numeric columns to create a more accurate and reliable dataset.

```r
# Identify numeric columns
numeric_cols <- sapply(df, is.numeric)

# Function to detect outliers based on IQR method for each column
detect_outliers <- function(column) {
  Q1 <- quantile(column, 0.25, na.rm = TRUE)
  Q3 <- quantile(column, 0.75, na.rm = TRUE)
  IQR_value <- Q3 - Q1
  lower_bound <- Q1 - 1.5 * IQR_value
  upper_bound <- Q3 + 1.5 * IQR_value

  # Identify rows where the values are outliers
  outliers <- which(column < lower_bound | column > upper_bound)
  return(outliers)
}

# Apply outlier detection to each numeric column
outliers_list <- lapply(df[, numeric_cols, drop = FALSE], detect_outliers)

# Combine all outlier indices from all columns (get unique row indices)
outlier_indices <- unique(unlist(outliers_list))

# Remove rows containing any outliers
df_cleaned <- df[-outlier_indices, ]
```

Figure 2: R code used to find outliers, remove and create cleaned data set

```
# Boxplots for visualization
par(mfrow=c(ceiling(sum(numeric_cols)/3),3))
for (col in names(df)[numeric_cols]) {
  boxplot(df[[col]], main=col, col="lightblue", horizontal=TRUE)
}
```
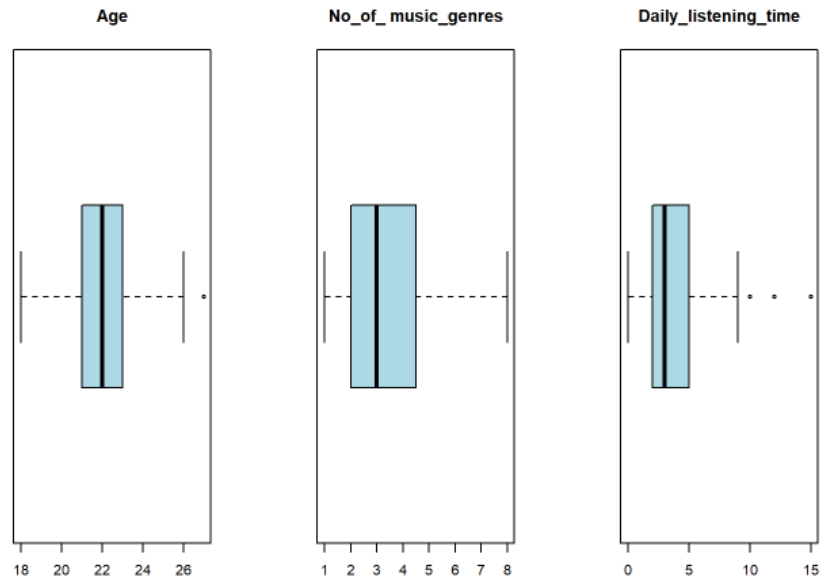
Figure 3: Using boxplots to identify outliers

Exploratory Data Analysis (EDA)

Summary statistics of the variables are as follows:

```
##       Age            Gender           Degree_program    Favorite_music_genre
## Min.   :18.00   Length:207         Length:207         Length:207
## 1st Qu.:21.00   Class :character   Class :character   Class :character
## Median :22.00   Mode  :character   Mode  :character   Mode  :character
## Mean   :21.88
## 3rd Qu.:23.00
## Max.   :27.00
## No_of_ music_genres Daily_listening_time Primary_Music_Platform
## Min.   :1.000       Min.   : 0.0         Length:207
## 1st Qu.:2.000       1st Qu.: 2.0         Class :character
## Median :3.000       Median : 3.0         Mode  :character
## Mean   :3.517       Mean   : 3.6
## 3rd Qu.:4.500       3rd Qu.: 5.0
## Max.   :8.000       Max.   :15.0
## Live_vs_streaming_prefrences Primary_listening_activity
## Length:207                   Length:207
## Class :character             Class :character
## Mode  :character             Mode  :character
##
##
##
## Music_discovey_preferences Music_motivation   Music_and_mental_health
## Length:207                 Length:207         Length:207
## Class :character           Class :character   Class :character
## Mode  :character           Mode  :character   Mode  :character
##
##
##
```

Figure 4: Summary statistics of the variables

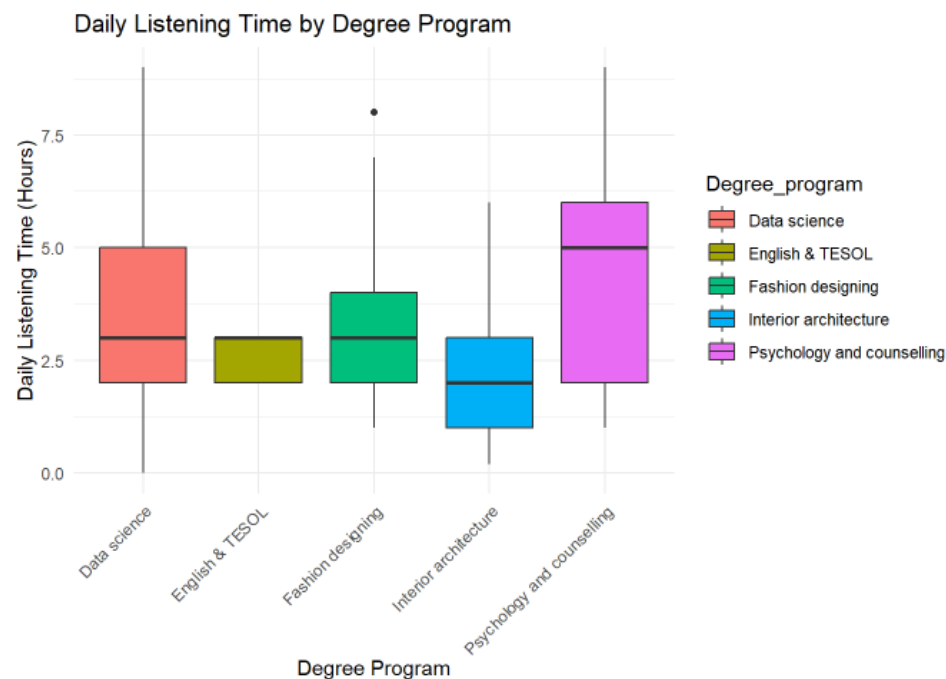**Comparison of Daily Listening Time Across Different Degree Programs.**

Figure 5: boxplot of the daily listening time vs degree programs

The distribution of daily listening time in hours across different degree programs appears in Figure 5 above the boxplot figure. The students enrolled in Psychology and Counseling show the longest average listening time yet exhibit widespread variation thus indicating varied listening patterns. The students in Interior Architecture demonstrate the least amount of listening time combined with the most regular listening patterns. Students majoring in Data Science spend moderate periods listening although a few individual cases point towards prolonged listening periods. The median listening time for Fashion Designing students exceeds the median of English & TESOL students while their listener behavior remains consistent throughout the period. licant listening preferences among students within each program are revealed by measuring the outliers across some programs. The

plots show comprehensive evidence about the way students in different educational fields handle listening tasks.

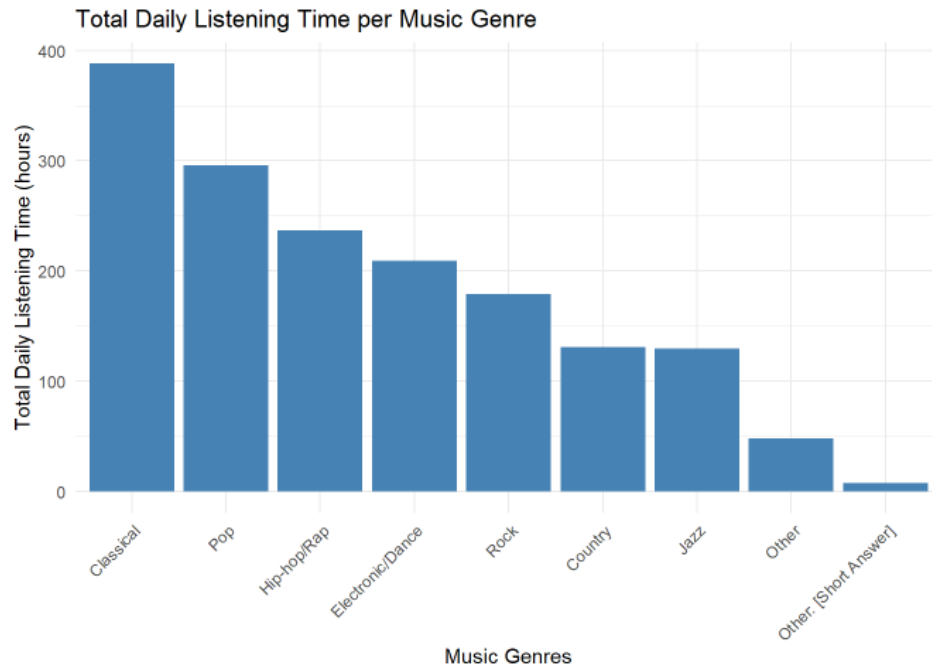**Analysis of Total Daily Listening Time Across Different Music Genres**

Figure 6: Bar chart of the daily listening time vs music genres

The bar chart in Figure 6 presents listening hours for different music genres throughout the day. Listeners choose to listen to Classical music the most which results in the longest listening durations. Both Pop and Hip-hop/Rap genres appear together due to their known popularity among listeners. Listening records for Electronic/Dance music and Rock demonstrate constant popularity among listeners. The listening duration for Country and Jazz music falls between the two extremes of the "Other" category and short-answers

responses alongside minimal engagement. Various music genres exist within a musical landscape where specific types dominate listened-to music throughout the day.

Gender Differences in Daily Music Listening Time Among Students
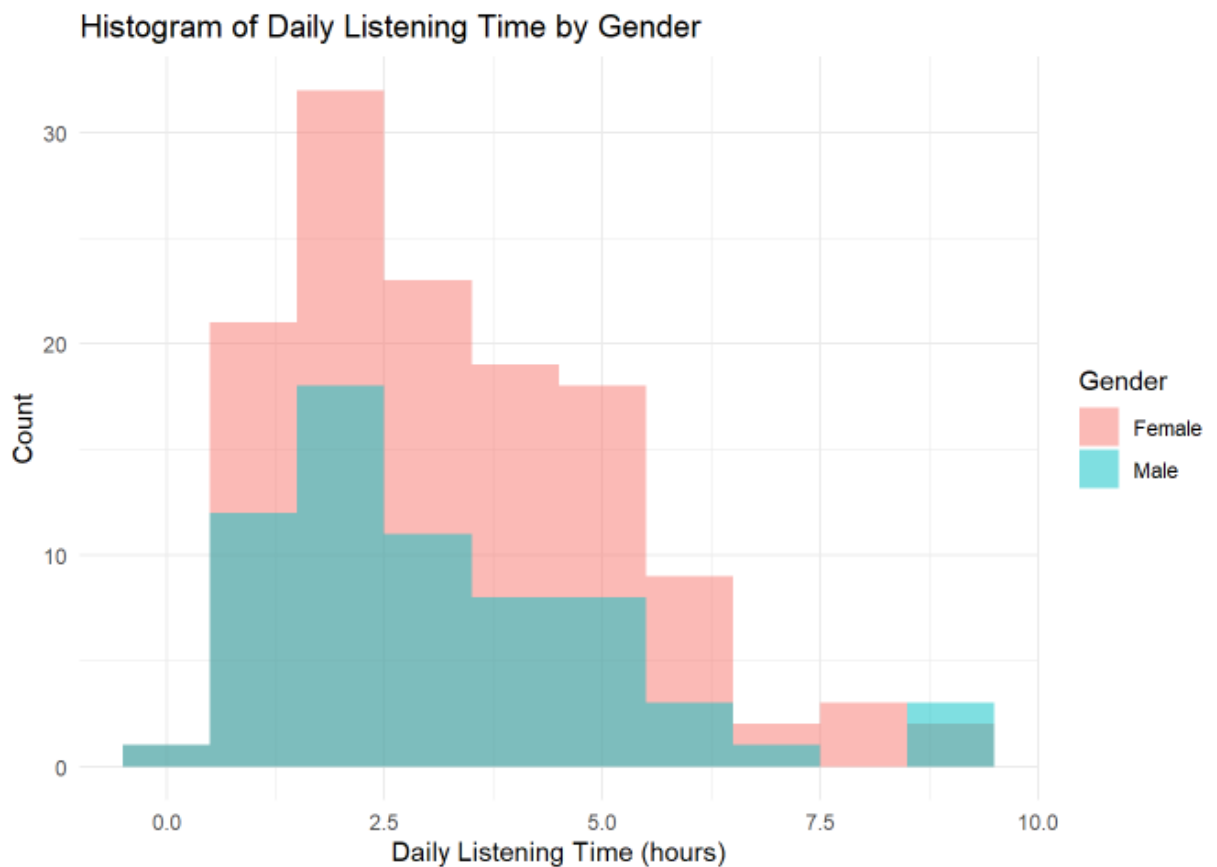
Figure 7: Histogram of the daily listening time according to gender

The daily music listening durations of male and female students are represented in Figure:7 through a histogram display. A large percentage of students consumes music between 1 to 4 hours every day according to statistical findings. In the time window from 2 to 3 hours female students who are displayed in pink demonstrate significant increases in their listening durations above those of male students who appear in blue. The right-skewed

shape of the distribution shows that students from both genders listen to music for fewer hours than they spend listening to music for less than 5 hours. The visual information suggests that gender might influence music consumption patterns thus researchers could study this pattern in relation to listening choices and academic habits or social exposure.

Preferred Music Platforms Among Students
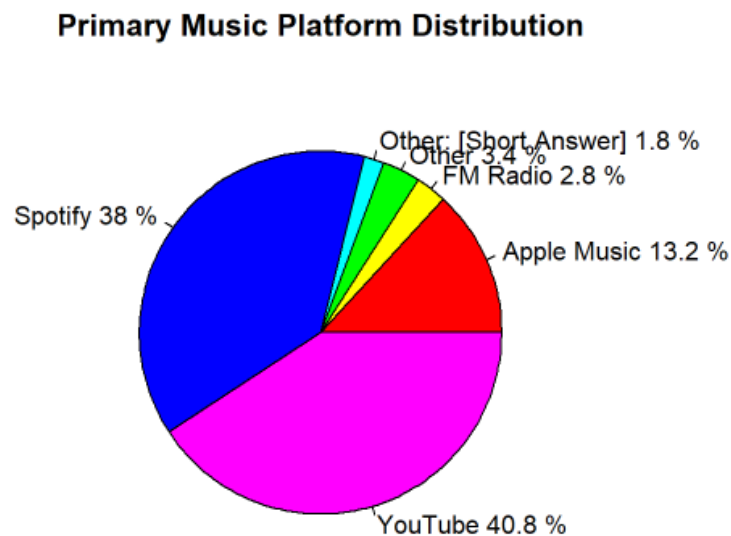
Figure 8: Pie chart of primary music platform distribution

Figure 8 shows the visual representation shows which platform students prefer first when listening to music. The majority of students (40.8%) stream music through YouTube while Spotify holds second place with 38% users indicating YouTube and Spotify as their favorite music platforms. Apart from Spotify the popularity of Apple Music speaks for a 13.2 percent share of music users. Traditional FM Radio occupies merely a 2.8% market share because students today listen less to radio broadcasts. About 1.8% of students

selected unknown responses for short-answer choices and 3.4% chose other alternative platforms for their music consumption. Students overwhelmingly prefer streaming music through YouTube and Spotify to consume their music based on these results.

Music Listening Habits in Different Activities

Proportion of Music Activities
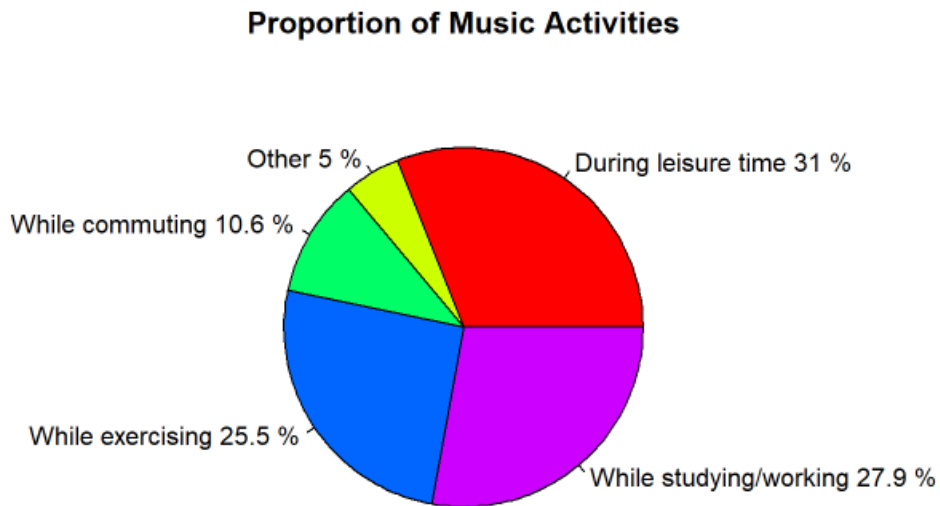
Figure 9: Pie chart of music habits in different activities

The distribution of music activities across different daily circumstances appears in Figure 9 through a pie chart representation. Music provides the most enjoyment during leisure activities since leisure listening takes up 31% of the total time spent with music according to Figure 9. A large number of people listen to music during their study and work sessions which makes up about 27.9% of musical activities during the day. Music plays a motivating role in physical activities because exercising remains the second most popular use of music at 25.5%. 10.6% of people listen to music during their commute to the city possibly to

combat redeem stress or to occupy their time. Users who engage in miscellaneous music-related activities make up the 5% portion of the total activities studied. The statistics reflect the essential nature of music in everyday life because people use it both for practical activities and leisure activities.

Statistical Analysis

Objective One: To determine whether there is a significant difference in daily listening time based on favorite music genre among young adults.

- ❖ Using one-way ANOVA to perform this objective

- • H0: The population means of daily listening time grouped according to favorite music genres is equal to each other.
- • H1: At least one of the population means of the daily listening time is not equal to another.

```
##                         Df  Sum Sq Mean Sq F value Pr(>F)
## Favorite_music_genre   75   263.1   3.508   0.898   0.69
## Residuals             119   464.8   3.906
```

Figure 10: ANOVA test results for objective one

Testing Assumptions

1.Homogeneity of Variance

- H0: The population variance of daily listening time grouped according to favorite music genres is equal to each other.

- H1: At least one of the population variances of the daily listening time is not equal to another.

```
## Levene's Test for Homogeneity of Variance (center = median)
##        Df F value Pr(>F)
## group  75  0.9402 0.6097
##        119
```

Figure 11: Lavene test results for assumption one

Since the p-value= 0.6097 > significance level= 0.05, we accept H0 and conclude that the population variance of daily listening time grouped according to favorite music genres is equal to each other.

2. Normality

- HO: the sample residuals are not significantly different than a normal distribution.

- H1: the sample residuals are significantly different than a normal distribution

```
##
##   Shapiro-Wilk normality test
##
## data:  anova.residuals
## W = 0.96413, p-value = 7.12e-05
```

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Since the p-value < significance level= 0.05, we reject H0 and conclude that the sample residuals are significantly different than a normal distribution.
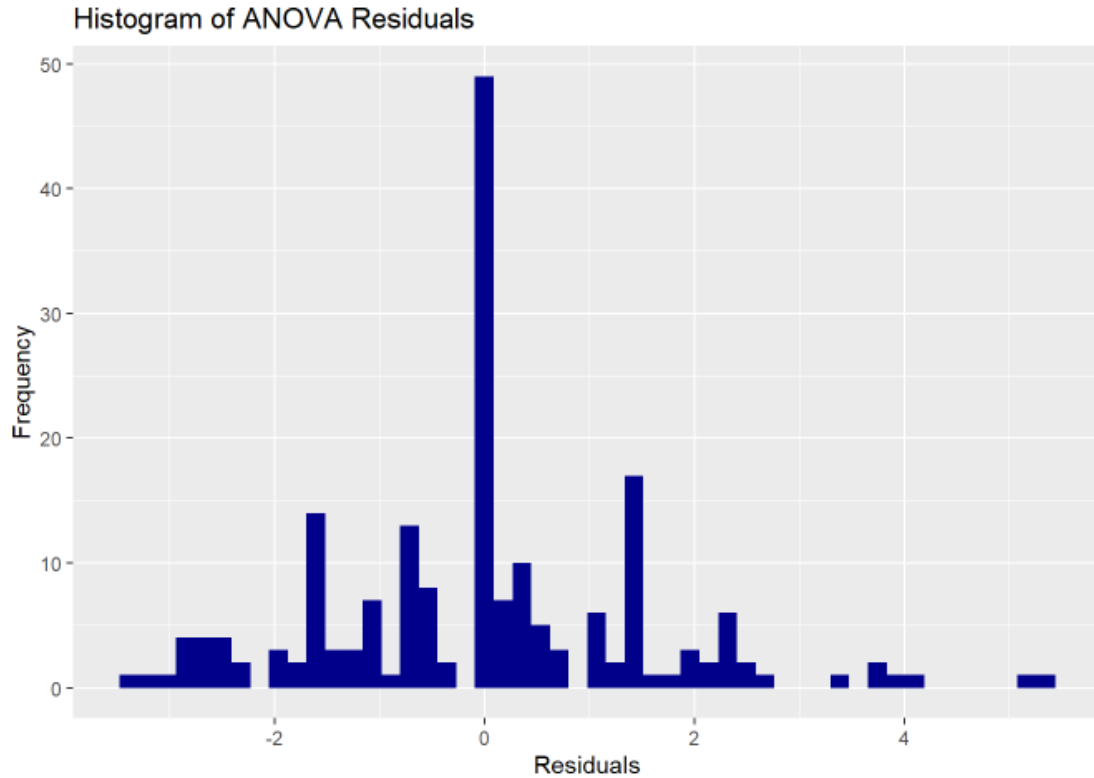

Figure 13: Normality graph for residuals

3.Independence test

- HO: observations are independent in the population.

- H1: observations are not independent in the population.

```
## lag Autocorrelation D-W Statistic p-value
##   1      -0.03648922        2.059532   0.828
## Alternative hypothesis: rho != 0
```

Figure 14: Durbin Watson test results for independence

Since p-value=0.828 > significance level=0.05, we accept H0 and conclude that the observations are independent in the population

❖ Since one out of the three assumptions of ANOVA is rejected, this suggests that ANOVA is not a suitable model for further analysis. The non-parametric alternative to ANOVA which is the Kruskal-Wallis test can be used.

Kruskal Wallis Test

- H0: The population medians of daily listening time grouped according to favorite music genres is equal to each other.

- H1: At least one of the population medians of the daily listening time is not equal to another.

```
##
##   Kruskal-Wallis rank sum test
##
## data:  Daily_listening_time by Favorite_music_genre
## Kruskal-Wallis chi-squared = 65.529, df = 75, p-value = 0.7744
```

Figure 15: Kruskal – Wallis test results

Since p-value= 0.7744 > significance level=0.05, we accept H0 and conclude that there isn't a statistically significant difference in the medians between the favorite music genres.

Objective Two: To determine whether there is a significant difference in the average time spent listening to music based on demographic factors among listeners.

1. To determine whether there is a significant difference in the average time spent listening to music between male and female listeners.

Independent sample T test

❖ Testing Normality

Check normality separately male and female.

```
##
##   Shapiro-Wilk normality test
##
## data:  df_cleaned$Daily_listening_time[df_cleaned$Gender == "Male"]
## W = 0.88351, p-value = 1.768e-05
```

Figure 16: Shapiro normality test results for male

```
##
##   Shapiro-Wilk normality test
##
## data:  df_cleaned$Daily_listening_time[df_cleaned$Gender == "Female"]
## W = 0.91988, p-value = 1.026e-06
```

Figure 17: Shapiro normality test results for female

Since the daily listening time of both genders do not follow a normal population, we do not proceed to use Independent two sample t-test. Instead, we use the Wilcoxon Rank Sum test, which is the non-parametric alternative to t-test.

Wilcoxon Rank Sum Test

- H0: true difference in medians between group Male and group Female is equal to 0.

- H1: true difference in medians between group Male and group Female is not equal to 0.

```
##
##  Wilcoxon rank sum test with continuity correction
##
## data:  Daily_listening_time by Gender
## W = 4509, p-value = 0.4379
## alternative hypothesis: true location shift is not equal to 0
```

Figure 18: Wilcoxon test results

Since p-value=0.4379 > significance level=0.05, we accept H0 and true difference in medians between group Male and group Female is equal to 0.

2. To examine whether there is a significant difference in the average time spent listening to music based on the listener's degree type.

ANOVA

- H0: The population means of daily listening time grouped according to degree program is equal to each other.
- H1: At least one of the population means of the daily listening time is not equal to another.

```
##                   Df Sum Sq Mean Sq F value  Pr(>F)
## Degree_program    4   62.6  15.653    4.47 0.00178 **
## Residuals        190  665.3   3.502
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Figure 19: ANOVA results for objective two

Testing the Assumptions

I.   Homogeneity of Variance

- H0: The population variance of daily listening time grouped according to degree program is equal to each other.
- H1: At least one of the population variances of the daily listening time is not equal to another.

```
## Levene's Test for Homogeneity of Variance (center = median)
##         Df F value   Pr(>F)
## group    4  4.2691 0.002485 **
##        190
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Figure 20: Levene test results

Since the p-value 0.002485 is less than 0.05, we have to reject the H0. Concluding there is an issue of homogeneity of variance in the different species. The assumption of homogeneity is being violated. We can resolve this issue by using one way test which assumes that the variances among the groups are not equal.

Since the homogeneity assumption is violated, one-way test is appropriate as it does not assume equal variances.

```
##
##   One-way analysis of means (not assuming equal variances)
##
## data:  Daily_listening_time and Degree_program
## F = 4.6847, num df = 4.000, denom df = 33.381, p-value = 0.004125
```

Figure 21: one- way test results

II.   Normality

- HO: the sample residuals are not significantly different than a normal distribution.

- H1: the sample residuals are significantly different than a normal distribution,

```
##
##  Shapiro-Wilk normality test
##
## data:  anova.residuals
## W = 0.9529, p-value = 4.717e-06
```

Figure 22: Shapiro test results for objective two

Since the p-value < significance level= 0.05, we reject H0 and conclude that the sample residuals are significantly different than a normal distribution.
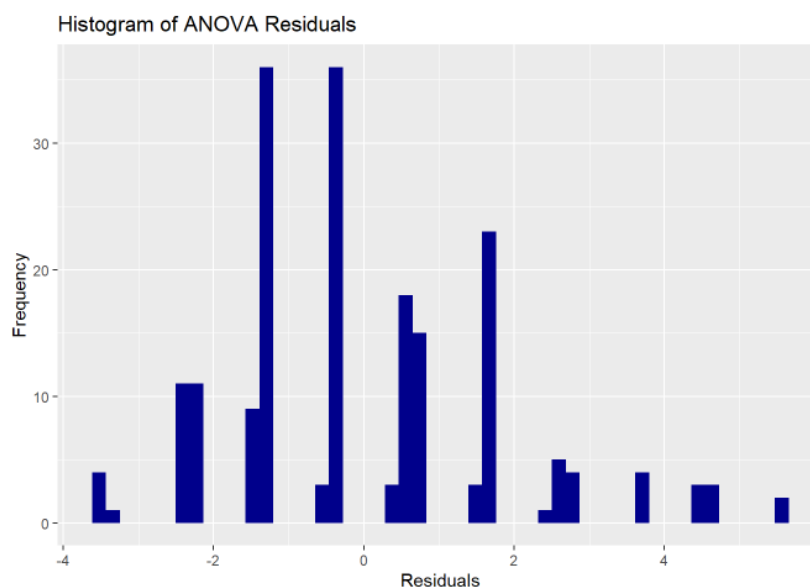

Figure 23: Normality graph for residuals

III.   Independence test

- HO: observations are independent in the population.

- H1: observations are not independent in the population

```
## lag Autocorrelation D-W Statistic p-value
## 1     -0.03953443    2.067412   0.668
## Alternative hypothesis: rho != 0
```

Figure 24: Durbin Watson test results

Since p-value=0.668 > significance level=0.05, we accept H0 and conclude that the observations are independent in the population.

❖ Since normality out of the three assumptions of ANOVA is rejected, this suggests that ANOVA is not a suitable model for further analysis. The non-parametric alternative to ANOVA which is the Kruskal-Wallis test can be used.

Kruskal Wallis Test

- H0: The population medians of daily listening time grouped according to degree program is equal to each other.

- H1: At least one of the population medians of the daily listening time is not equal to another.

```
##
##  Kruskal-Wallis rank sum test
##
## data:  Daily_listening_time by Degree_program
## Kruskal-Wallis chi-squared = 13.192, df = 4, p-value = 0.01037
```

Figure 25: Kruskal – Wallis test results

Since p-value= 0.01037 < significance level=0.05, we reject H0 and conclude that there is a statistically significant difference in the medians between the degree programs.

4.2 Findings and Interpretation

Based on the analysis of collected data, the findings provide insights into the relationship between demographic factors, music genre preferences, and daily music listening time among young adults.

A one-way ANOVA test was conducted at first to evaluate whether musical preferences impact the amount of time participants listen to music per day. The ANOVA test failed due to violation of its key requirement for normal residuals which forced researchers to conduct a Kruskal-Wallis test as their non-parametric alternative. The Kruskal-Wallis test produced a result of p-value 0.7744 surpassing the 0.05 threshold. Listening durations throughout the day remain equal among different music genres based on user preferences. The analysis showed that music fans spent different amounts of time listening to each genre however these results did not reach statistical significance when examined with classical music as an example.

Findings indicate that subjective listening behavior changes according to individual preferred music styles at different times but daily song engagement does not show meaningful differences between music genres which users select as favorites. The measured daily music listening time seems unaffected by the preferred music genres possibly because other external factors influence listening activity aside from genre selection.

An independent sample t-test served to determine if gender would impact music listening time. The examination utilized the Wilcoxon Rank Sum Test because normality violations existed. With a p-value of 0.4379 the analysis results showed no statistical significance because the value exceeded the critical threshold of 0.05. Data reveals that the average daily listening durations of males stand equivalent to those of females.

Research findings indicate that gender does not influence how much time young adults spend listening to music every day. The research results showed equal music listening behavior between male and female participants indicating that personal usage patterns affect music consumption more than gender differences.

The researchers used a one-way ANOVA test to assess if degree type influenced daily listening time of participants. The researcher initially used a one-way ANOVA but had to replace it with the Kruskal-Wallis test because normality and homogeneity assumptions were not met. A p-value of 0.01037 came out of the Kruskal-Wallis test and fell below the established significance level 0.05. The analysis demonstrates that students between different programs have differing patterns of everyday audio consumption. Students in the

Psychology and Counseling major demonstrated the maximum listening duration yet the Interior Architecture students displayed the minimum listening duration.

The research data suggests academic training could affect how students consume music. Students in Psychology Counseling programs listen to music for relaxation purposes alongside emotional control yet students in Interior Architecture might find limited time for music listening due to their academic workload.

Among the study participants the favorite music genre and gender did not cause any meaningful variations in their daily music listening habits. The researchers found that graduated students listened to music for different periods of time compared to others indicating that university majors could affect music preferences. Data from this research enhances researchers' knowledge about how population characteristics shape music consumption practices among young adults thus providing important information for educational bodies and music platform creators and scientists.

Chapter 5: Discussion and Recommendations

5.1 Discussion

Results from the analysis demonstrate the effects that population traits along with music style choices have on daily musical listening habits among the youthful generation. Research data reveals that music preference genres do not result in different amounts of daily music listening. A contrary finding emerges because academic research established that specific genre of music have no effect on increased engagement periods. Statistical tests validated that different music genres produced the same listening duration results even

though listeners experienced varying amounts of time spent listening to particular music genres. The data indicates personal schedules and mood as well as availability exceed genre preferences when evaluating how music listening time develops.

This study found that gender does not produce any substantial effects on student music listening duration. Previous studies indicated males and females listened differently but this study produces different results thus challenging those previous findings. Data shows that male and female students spent similar amounts of time listening to music which indicates external study practices together with social influences and streaming services cancel out possible gender-based differences in listening duration.

Daily music listening time showed a direct relationship with the education type students were pursuing. Students enrolled in Psychology and Counseling spent the most extensive amount of time listening to music since they may use music as a stress-reduction tool. Students in Interior Architecture showed the shortest music listening period since their academic requirements demanded focused attention without many musical distractions. The evidence demonstrates that academic workload together with cognitive demands significantly influence the way students consume music.

5.2 Recommendations

Academic institutions need to research the implementation of music playlists or background music in their study areas particularly for academic fields that respond positively to music during study periods. Additional research must investigate music's

effects on academic performance in different academic subjects to establish its optimal use in educational institutions.

Music streaming platforms should derive their customized recommendation engines from user information which includes academic discipline and current workload. Study Mode along with Concentration Playlists are customizable features available for students who need particular musical choices while concentrating and relaxing.

5.3 Conclusion

The research investigated how different demographic characteristics together with musical preference preferences affect daily music listening duration in young adults. The study findings show music genre along with gender does not alter listening period but university discipline directly affects the length of music playback. People majoring in Psychology and Counseling listen to music the longest but students in Interior Architecture have the shortest listening time probably because of variations in academic workload.

Research results demonstrate that environment influences decisively form how people use music as an activity. To enhance the music benefits for young adults' schools should integrate music into their academic settings combined with custom music streaming options and teaching sensory music awareness practices. More research needs to identify supplementary factors which influence music engagement to develop a complete understanding of population demographics' and environmental elements' effect on music listening behavior patterns.

REFERENCES

Arun Kumar, A., & Akash, U. (2020) 'Influence of demographic factors on music listening preferences in the workplace', *International Management Review*, *16*(1). Available at: https://americanscholarspress.us/journals/IMR/pdf/IMR-1-2020/IMR-v16n1art9.pdf

Bonneville-Roussy, A., Rentfrow, P. J., Xu, M. K., & Potter, J. (2013) 'Music through the ages: Trends in musical engagement and preferences from adolescence to middle adulthood', *Journal of Personality and Social Psychology*, *105*(4), pp. 703-717. Available at : https://doi.org/10.1037/a0033770.

Bonneville-Roussy, A., Stillwell, D. J., Kosinski, M., & Rust, J. (2017) 'Age trends in musical preferences in adulthood: Popular, eclectic, and contemporary styles', *Psychology of Music*, *45*(5), pp. 600-615. Available at: https://doi.org/10.1177/0305735617697501.

Chamorro-Premuzic, T., Swami, V., & Cermakova, B. (2012) 'Individual differences in music consumption are predicted by uses of music and age rather than emotional intelligence, neuroticism, extraversion, or openness', *Psychology of Music*, *40*(3), pp. 285-300. Available at: https://doi.org/10.1177/0305735610381591.

Chen, J. R. (2018) 'The impact of different genres of music on teenagers', *International Journal of Psychological Studies*, *10*(4), pp. 42-51. Available at: https://doi.org/10.5539/ijps.v10n4p42.

Colley, A. (2008) 'Young people's musical taste: Relationship with gender and gender-related traits', *Journal of Applied Social Psychology*, *38*(8), pp. 2039-2055. Available at: https://doi.org/10.1111/j.1559-1816.2008.00379.x.

Glover, M. B. (2023) *We're listening: A study of music preference in modern society*. Master's thesis. University of the Pacific. Available at: https://scholarlycommons.pacific.edu/uop_etds/3845/ [Accessed: 9 February 2025].

Greenberg, D. M., Kosinski, M., Stillwell, D. J., Monteiro, B. L., Levitin, D. J., & Rentfrow, P. J. (2016) 'The song is you: Preferences for musical attribute dimensions reflect personality', *Social Psychological and Personality Science*, *7*(6), pp. 597-605. Available at: https://doi.org/10.1177/1948550616641473.

Krause, A. E., North, A. C., & Heritage, B. (2018) 'The uses and gratifications of using streaming services', *Computers in Human Behavior*, *80*, pp. 274-283. Available at: https://doi.org/10.1016/j.chb.2017.11.008.

Mohamed Ahmed, A. M. (2024) *The impact of music on mood: Descriptive observations of listening experiences and their effect on mental health*.

North, A. C., & Hargreaves, D. J. (2007) 'Lifestyle correlates of musical preference: 1. Relationships, living arrangements, beliefs, and crime', *Psychology of Music*, *35*(1), pp. 58-87. Available at: https://doi.org/10.1177/0305735607068888.

Rentfrow, P. J., Goldberg, L. R., & Levitin, D. J. (2011) 'The structure of musical preferences: A five-factor model', *Journal of Personality and Social Psychology*, *100*(6), pp. 1131-1157. Available at: https://doi.org/10.1037/a0022406.

Rentfrow, P. J., & Gosling, S. D. (2003) 'The do re mi's of everyday life: The structure

and personality correlates of music preferences', *Journal of Personality and Social*

Psychology, *84*(6), pp. 1236-1256. : https://doi.org/10.1037/0022-3514.84.6.1236.

Spinelli, C. (2015) *Assessing music listening habits in a media-rich society*.
Undergraduate thesis. University of Vermont. Available at:
https://scholarworks.uvm.edu/context/hcoltheses/article/1084/viewcontent

ATTACHMENTS

Questionnaire

1. What is your age? (Numeric)

2. What is your gender?
   - Male
   - Female

3. What is your degree program?
   - Interior architecture
   - Psychology and counselling
   - Data science
   - Fashion designing
   - English & TESOL

4. What is your favorite music genre?
   - Pop
   - Rock
   - Hip-hop/Rap
   - Jazz
   - Electronic/Dance
   - Country
   - Other

5. How many hours do you spend listening to music daily? (Number validation: 0-24)

6. Which platform do you primarily use to listen to music?
   - Spotify
   - Apple Music
   - You tube
   - Fm radio
   - Other

7. During which activity do you listen to music the most? (Music Listening Habits)
   - While commuting
   - While studying / working
   - While exercising
   - During leisure time
   - Other