How Music Affects Mood

An anonymous survey administered to college students

Alivia Yates, Carly Velasquez, Emily Graham, Emily Rosenfeld, Lilly Linkous

Why Music & Mood?

- Most of the United States population listens to music
  - 2014 Study: 93% listen to music [1]
  - 2019 Study: 68% of 18-34 year olds listen to music daily [2]
- Music has a profound impact biologically
  - Varying music excites varying regions of the brain [3]
  - Music induces the release of neurotransmitters/hormones: dopamine, serotonin, & oxytocin [4]
- Emotions are different than mood
  - Emotions are short-lived & often has a direct stimulus
    - Contributes to mood
  - Mood is long-term & is more general
- In college students, mood impacts academic performance & social behaviors [5]

Objectives

- Understand the relationship between music & mood
- Identify how varying factors surrounding music result in different impacts
- Encourage future research on improving mood through music

Survey Instrument

Google Forms

- 16 questions
- 55 responses

Distribution

- Friends/roommates
- Organizations

Utilization

- Mostly closed ended
  - Multiple choice, multi-select, & scale
- Open ended
  - “Other” option & open explanation

Types of Questions & Rationale

Closed-ended

- What year of college are you?
- What is your gender?
- What college are you in?
- How would you describe your overall stress level?
- What is/are your preferred genre(s)?
- How often do you listen to music?
- When do you typically listen to music?
- Does listening to music while studying help/distract you?
- How do you listen?
- Do you think music influences your mood?
- How does music influence your mood?
- Have you ever intentionally used music to change your mood?
- How effective is music in influencing your mood?

Open-ended

- What music streaming service do you mainly use?
- Do different genres produce different emotions?
- Do you purposely play specific music to evoke a specific emotion?

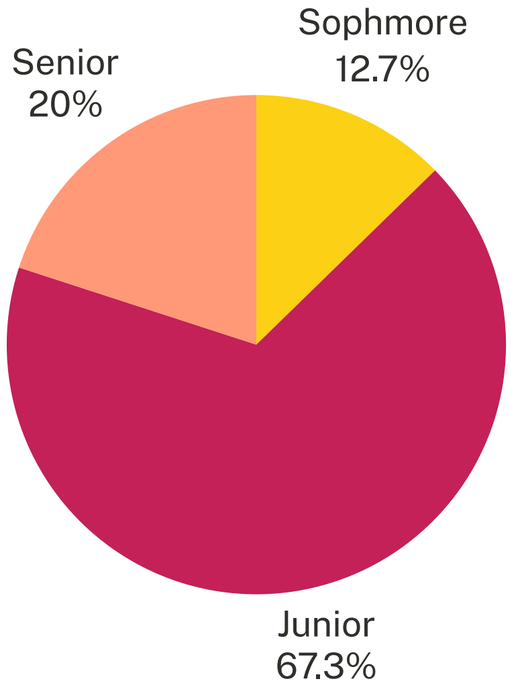
Rationale

- Multiple choice/multi-select: direct qualitative data
- Scales: assigns a numeric value to data
- Open response: insight on participants' reasoning/perception

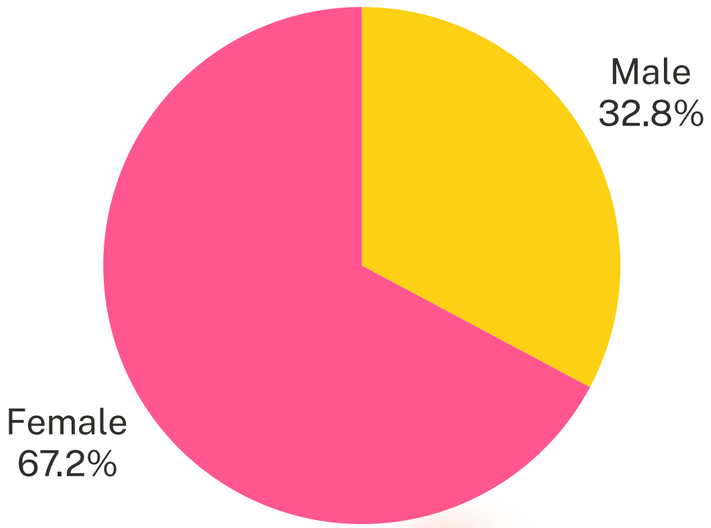
Results

55 responses:

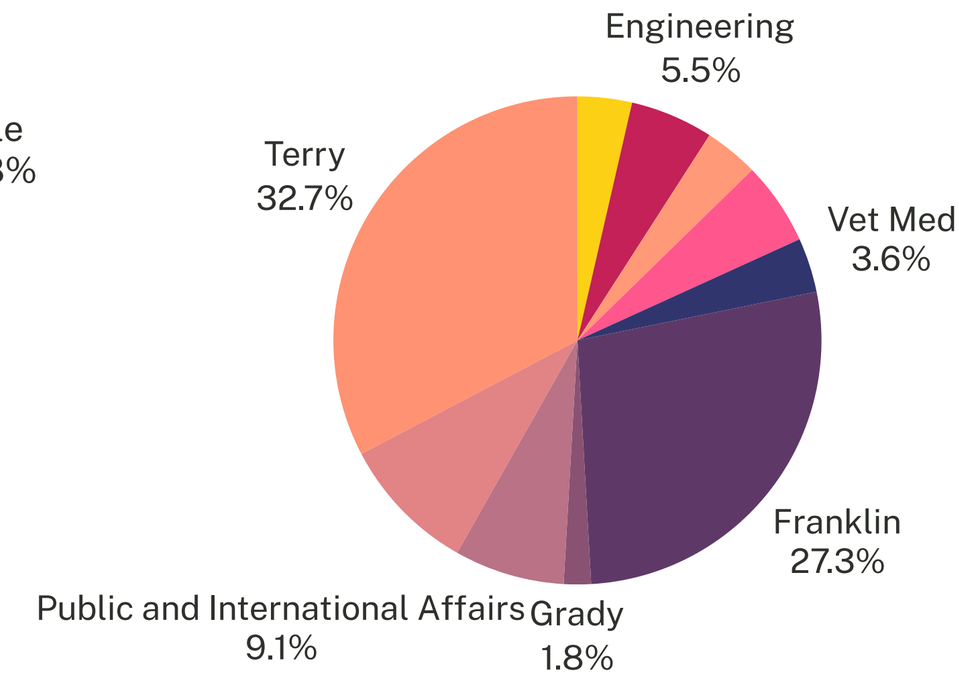
Year of College



Gender



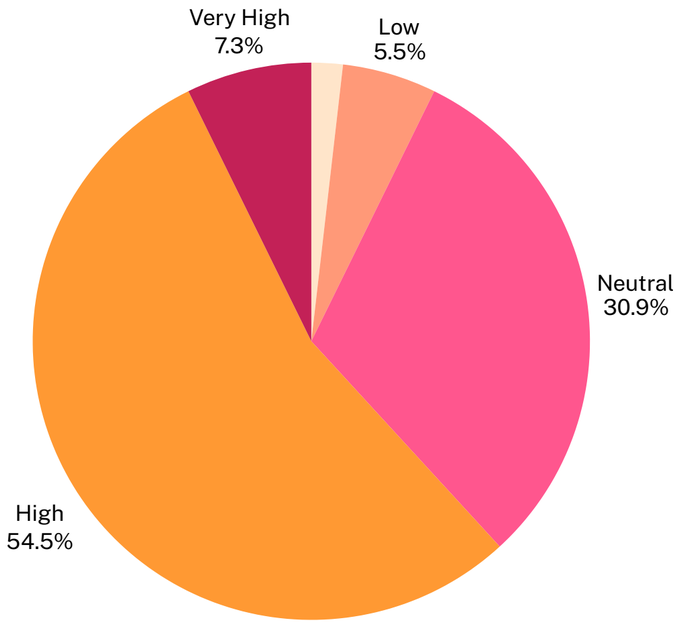
College



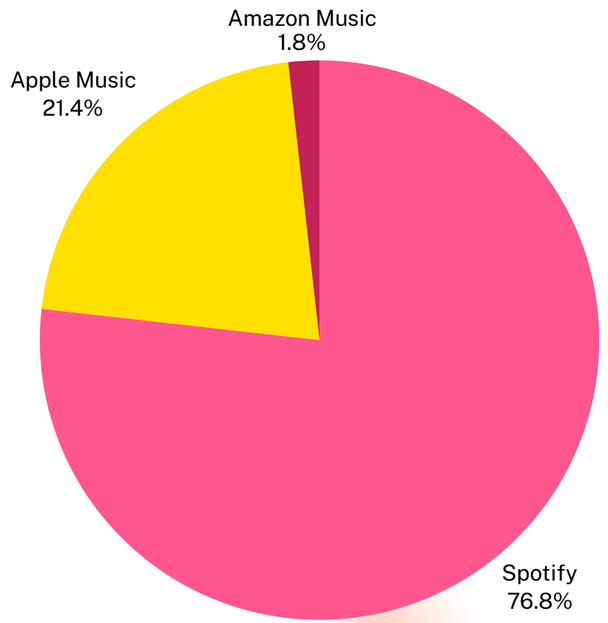
Results

55 responses:

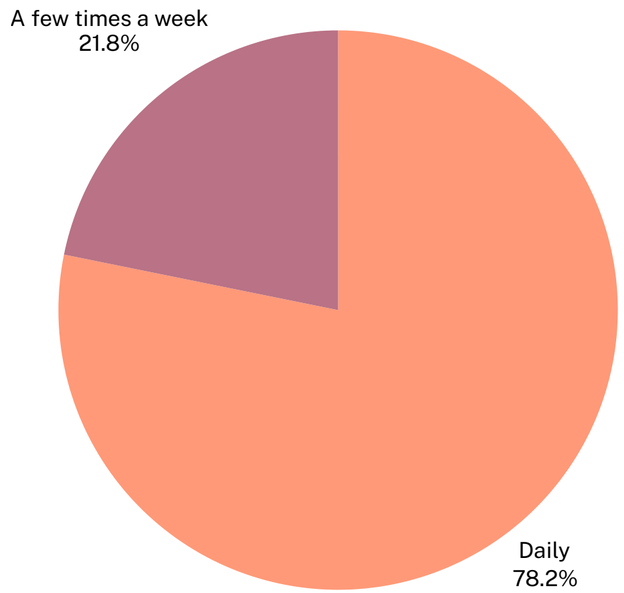
Stress Levels



Streaming Service

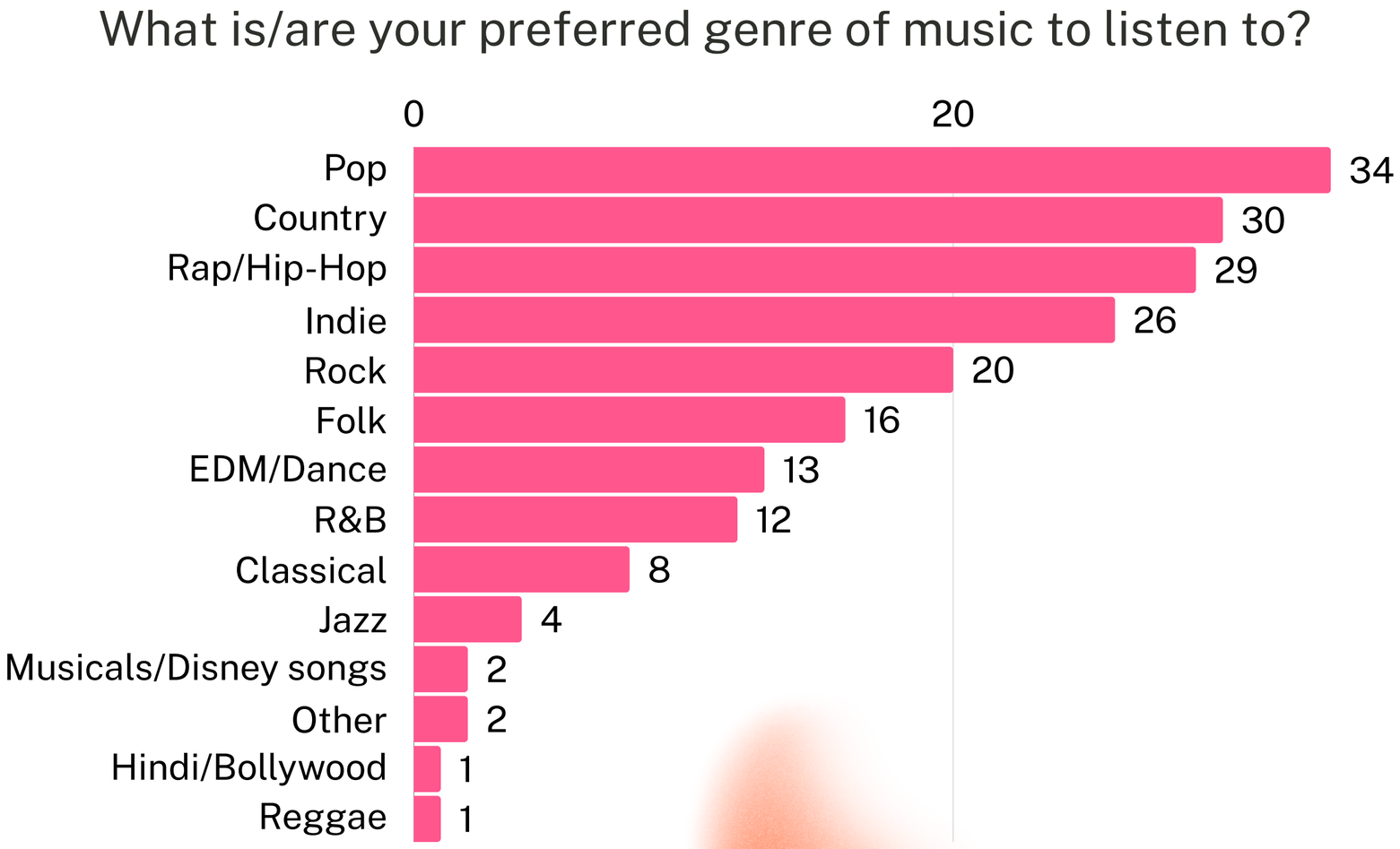


Measure of Listening



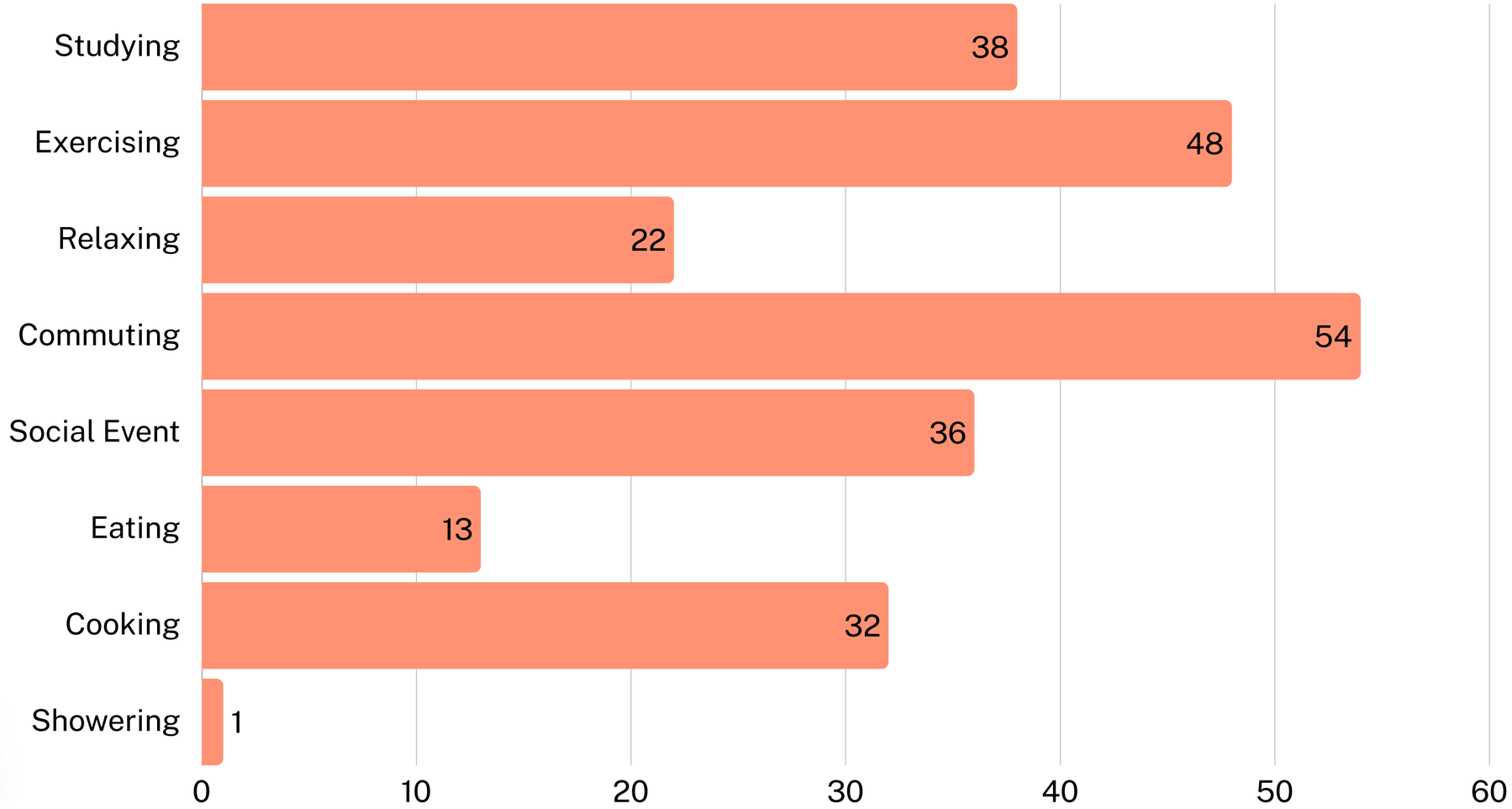
Results

55 responses:



Results

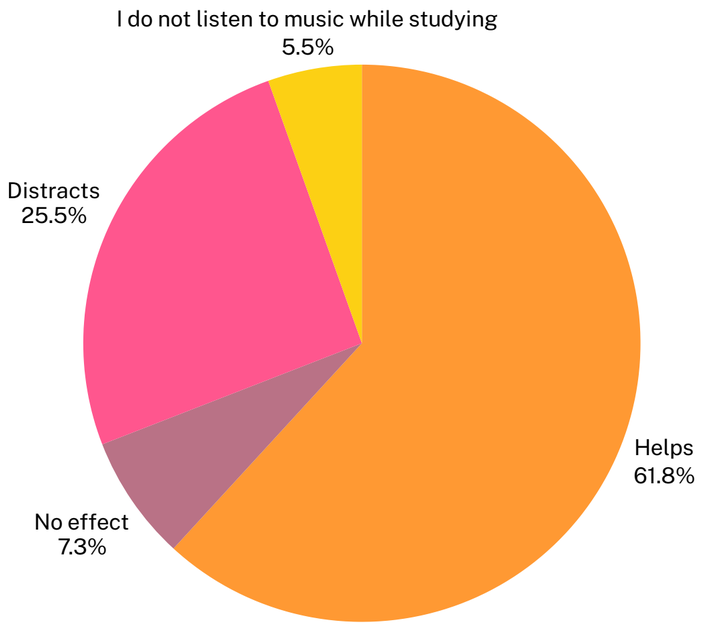
When do you typically listen to music? Select all that apply



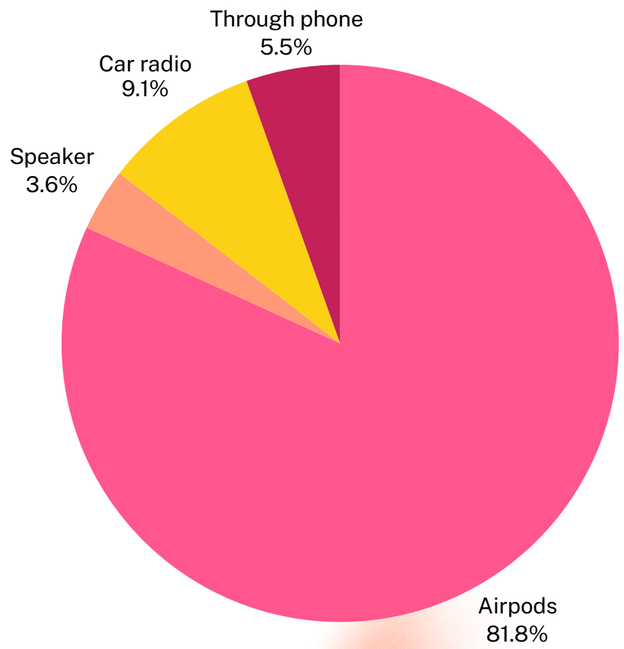
Results

55 responses:

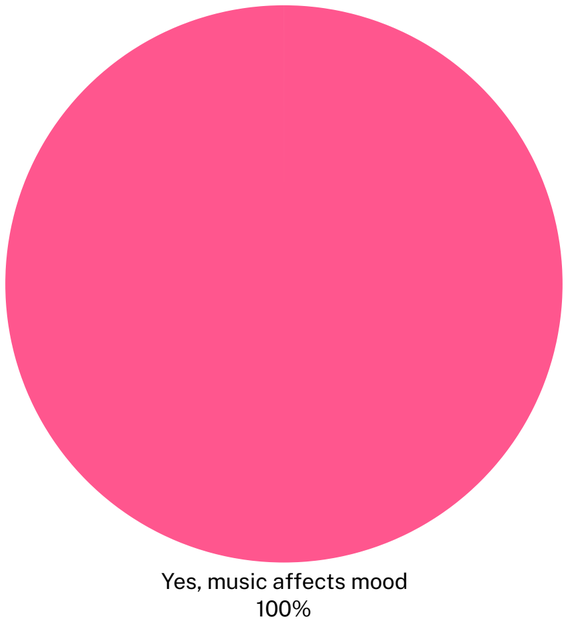
Focus/Distraction



Ways to Listen

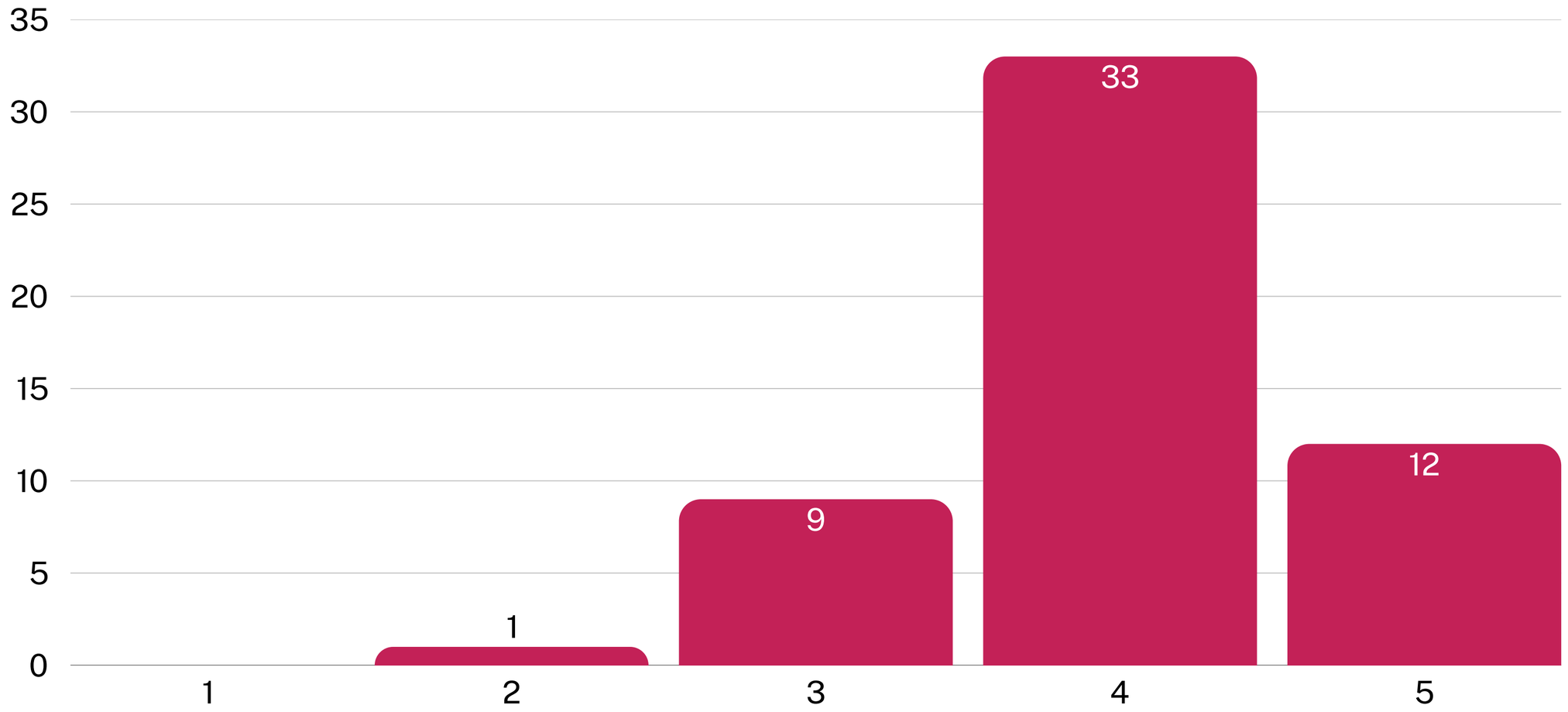


Influencing Mood



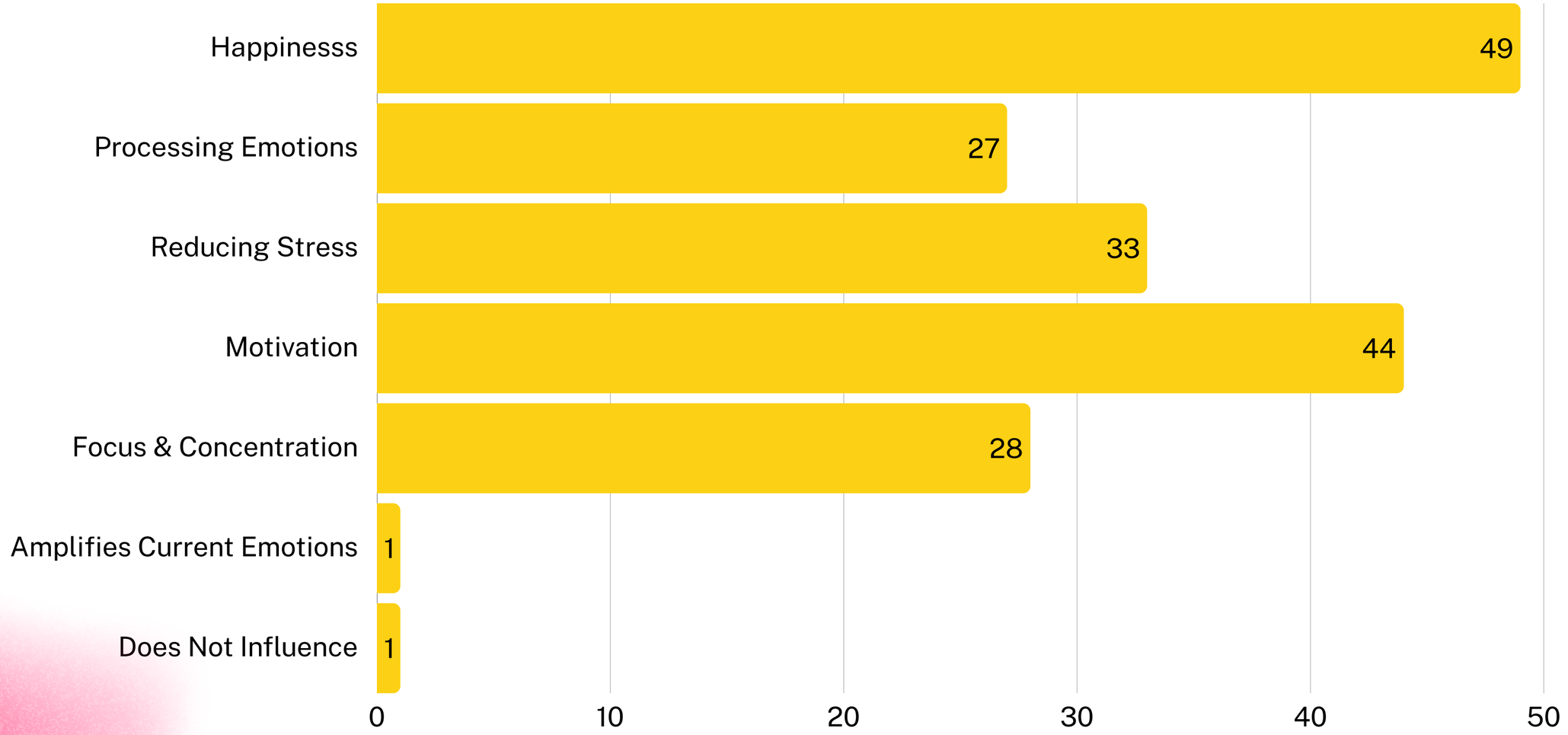
Results

On a scale of 1-5, how effective do you feel music is in influencing your mood?



Results

How does music influence your mood?



Results

Do different genres of music produce different emotions?

"Faster paced and more upbeat songs will motivate and excite, and slower/sadder songs will slow me down and make me sad or just use to relax and wind down"

"Yes, when something is upbeat and has positive lyrics, I feel more positive and this is usually pop. However, sad and lyrical music makes me sadder. This does not mean pop is always happy, however the music that I see usually is"

"Yes! Classical music calms me down while epic orchestral music hypes me up for studying and energizes me (especially when I don't feel like working"

"Yes. Some genres like EDM/Dance are associated with more energetic moods while others like Indie/Folk associate with moods of calmness or reflection"

"I don't know if it's necessarily genre that influences mood, it's more so the mood or theme of the song"

"Yes, loud and upbeat music like rock can motivate me while slower music like country and r&b can calm me down"

Results

Do you purposely play specific music to evoke a specific emotion?

"No its more about the situation"

"Yes, if I want to cry I will play specific music to make me sad and if I need to be in a good mood I will play my hype and good vibes songs"

"Yes, throwback playlist makes me happy and feel nostalgic, peaceful music study music when i need to actually lock in, rap if i want some energy"

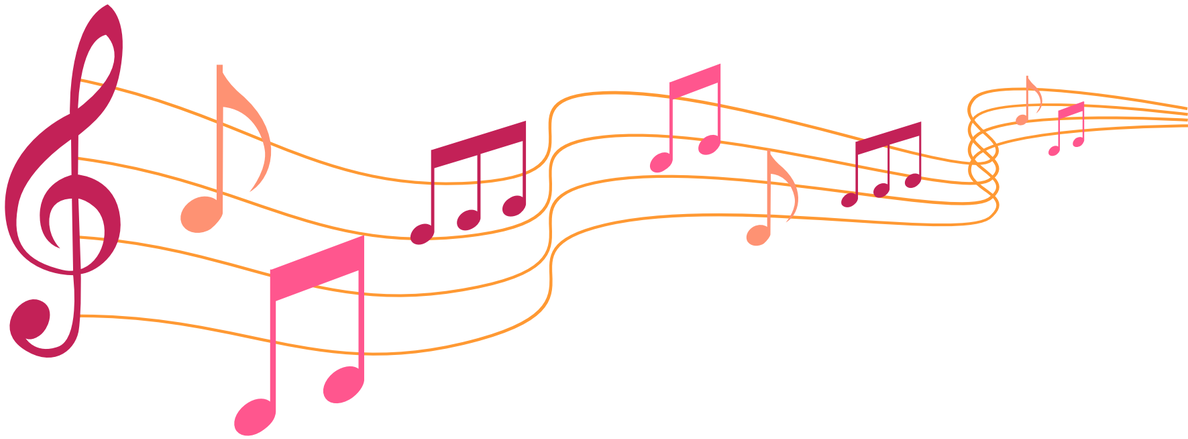
"Sometimes I play rock music to get me going and moving and in a better mood"

"If I do it is when exercising to get me more motivated. Normally it is fast paced upbeat songs that I like."

"Yes but normally only if I need to feel pumped up"

Results: An Overview

- 100% of the 55 respondents said that **music influences their mood**
- The majority (67.3%) of our data came from **females**
  - 32.7% were males
- 67.3% of respondents were **Juniors**
- 61.8% of respondents experience **high or very high stress levels** as a college students
- 92.7% of the respondents listen to music **daily**
- Out of the 55 responses...
  - 49 indicated that music makes them feel **happier**
  - 44 indicated that music makes them feel more **motivated**



Analysis

- We performed a Chi-squared test to determine if there is a relationship between **stress levels** and the **frequency of listening to music**
- We hypothesize that those with higher stress levels listen to music on a daily basis
- Null hypothesis
  - There is no relationship between stress levels and frequency of music listening

- $\chi^2 \approx 23.55$
- DF = 3
- p-value = 0.000031 ($p < 0.05$)

- We fail to reject the null hypothesis, showing that there is a significant relationship between high stress levels and listening to music daily

Limitations

Small & Homogenous Sample

- Small sample size (n=55) – limits generalizability
- Sample of mostly female third-year students – also limits generalizability

Sampling Bias

- The survey was distributed through certain channels (ex: sorority group chats), so it likely attracted a certain demographic, introducing **self-selection bias.**
- People who are already interested in music might be more likely to respond, skewing results.

Lack of Diversity in Preferred Music Genres

- Most participants reported listening to popular genres (pop, hip-hop/rap, indie, country), which may not represent how lesser-heard genres (ex: classical, jazz) affect mood

Self-Reported Data

- Participants' answers are based on subjective perceptions and memory, which can lead to **response bias** or **inaccuracies.**
- For example: someone might overstate how often they listen to music or how much it affects their mood.

Stress Levels Not Controlled

- Since 61.8% had high/very high stress, stress could be a **confounding variable**, influencing both music habits and mood, making it hard to tell what's causing what.

No Baseline or Control Group

- All participants reported that music affects their mood. Without a comparison group (people who don't listen to music often), it's difficult to assess the impact objectively.

Validity

Internal Validity

- Definition: How accurately a study demonstrates that changes in one variable directly cause changes in another variable
- Our study had moderate internal validty
  - standardized survey distributed via google forms
  - close ended questions provided consistency
  - no control group
  - self-reported mood and bias from social pressures
  - confounding variables

External Validity

- Definition: The extent to which the results of the study can be generalized to other settings, populations, or time periods
- Our study had low external validity
  - sample limited in size and diversity
  - May not generalize to broader age groups or contexts

Reliability

Strengths

- Consistent survey for all participants
- Mostly close ended questions for consistent structure
- Anonymity
- Clear instructions and wording

Limitations

- Mood is subjective and can change quickly, affecting response stability
- No follow-up or repeated measurements

Future Research

- Findings revealed that music has an on influence mood, allowing further research to examine how we can use music in different settings to evoke specific emotions

- For example, music can be used:
  - In the workplace to boost morale
  - In schools to enhance focus
  - In hospitals to reduce anxiety and stress
  - In therapy to help express emotions
  - In assisted living facilities to foster a positive environment and improve cognition

- Future research should focus on the advantages and disadvantages of using music to influence mood

Thank You!

Do you have any questions?

References

1. Nielsen. (2015, January). Everyone Listens to Music, But How We Listen is Changing. Nielsen. https://www.nielsen.com/insights/2015/everyone-listens-to-music-but-how-we-listen-is-changing/
2. Leu, P. (2024, April 29). Music listening frequency in the United States as of June 2019, by age group. Statista; Statista. https://www.statista.com/statistics/749666/music-listening-habits-age-usa/
3. Putkinen, V., Nazari-Farsani, S., Seppälä, K., Karjalainen, T., Sun, L., Karlsson, H. K., Hudson, M., Heikkilä, T. T., Hirvonen, J., & Nummenmaa, L. (2020). Decoding Music-Evoked Emotions in the Auditory and Motor Cortex. Cerebral Cortex, 31(5), 2549–2560. https://doi.org/10.1093/cercor/bhaa373
4. Speranza, L., Pulcrano, S., Perrone-Capano, C., di Porzio, U., & Volpicelli, F. (2022). Music affects functional brain connectivity and is effective in the treatment of neurological disorders. Reviews in the neurosciences, 33(7), 789–801. https://doi.org/10.1515/revneuro-2021-0135
5. Mehta, K. J. (2022). Effect of sleep and mood on academic performance — at interface of physiology, psychology, and education. ProQuest, 9(1). https://doi.org/10.1057/s41599-021-01031-1