



# Music's Effect on Stress and Motivation in High School Students



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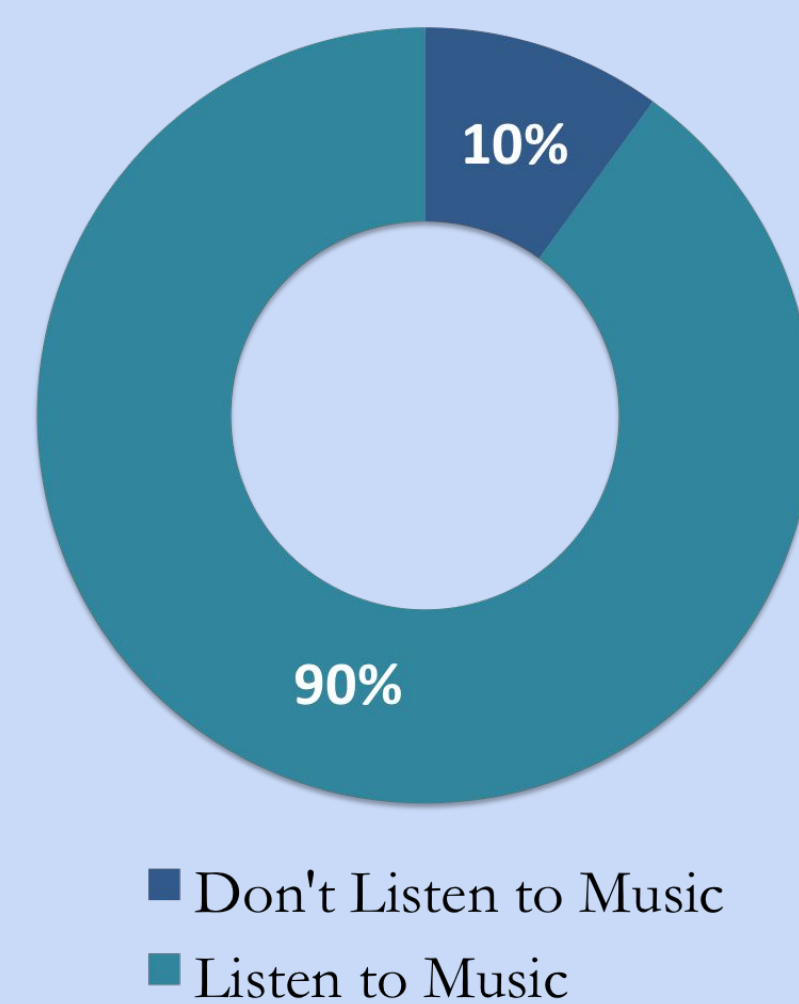
## Background

Music has been shown to play large roles in the lives of people with physical and mental illness, but little work has been done around the effects of music on the lives of teenagers. **Stress and motivation** are common issues among high schoolers, especially those in Palo Alto, and can lead to anxiety and depression (Yehuda, 2011). **Music therapy**, or "music for non-musical treatment goals," (Storrs, 2017) is often utilized to address such issues but requires the services of a trained music therapist. However, music can still benefit those who take **deliberate action** on their own. Studies have shown that intense songs with faster tempos increase motivation, while calmer songs with slower tempos decrease stress and evoke tranquility (Yehuda, 2011). However, effects may be difficult to determine in a short period of time (Scutti, 2017).

## Importance

Many people, especially teenagers, listen to music daily. However, many people do not appear to be aware that listening to music not only brings **enjoyment** but also provides **health benefits**. High schoolers, one of the demographics that experiences the most stress and need for motivation, can utilize this **easily accessible** and **incredibly simple** tool to cope with these issues. By not deliberately using music to decrease stress and increase motivation, students deprive themselves of a potential tool that can be reached with the click of a mouse or the tap of a screen. It's (literally) right at our fingertips.

Figure 1: Listening Habits of High School Students in Palo Alto



## Initial Survey Data

**81% Stressed**

"Somewhat," "Very," or "Extremely"

**79% Unmotivated**

"Somewhat," "Slightly," or "Not at all" Motivated

**59% Unknowledgeable**

Know "Little" or "Nothing" about Music's Health Benefits

**90% Listen to Music**

"Often" or "Very Often"

**67% Listen to Decrease Stress**

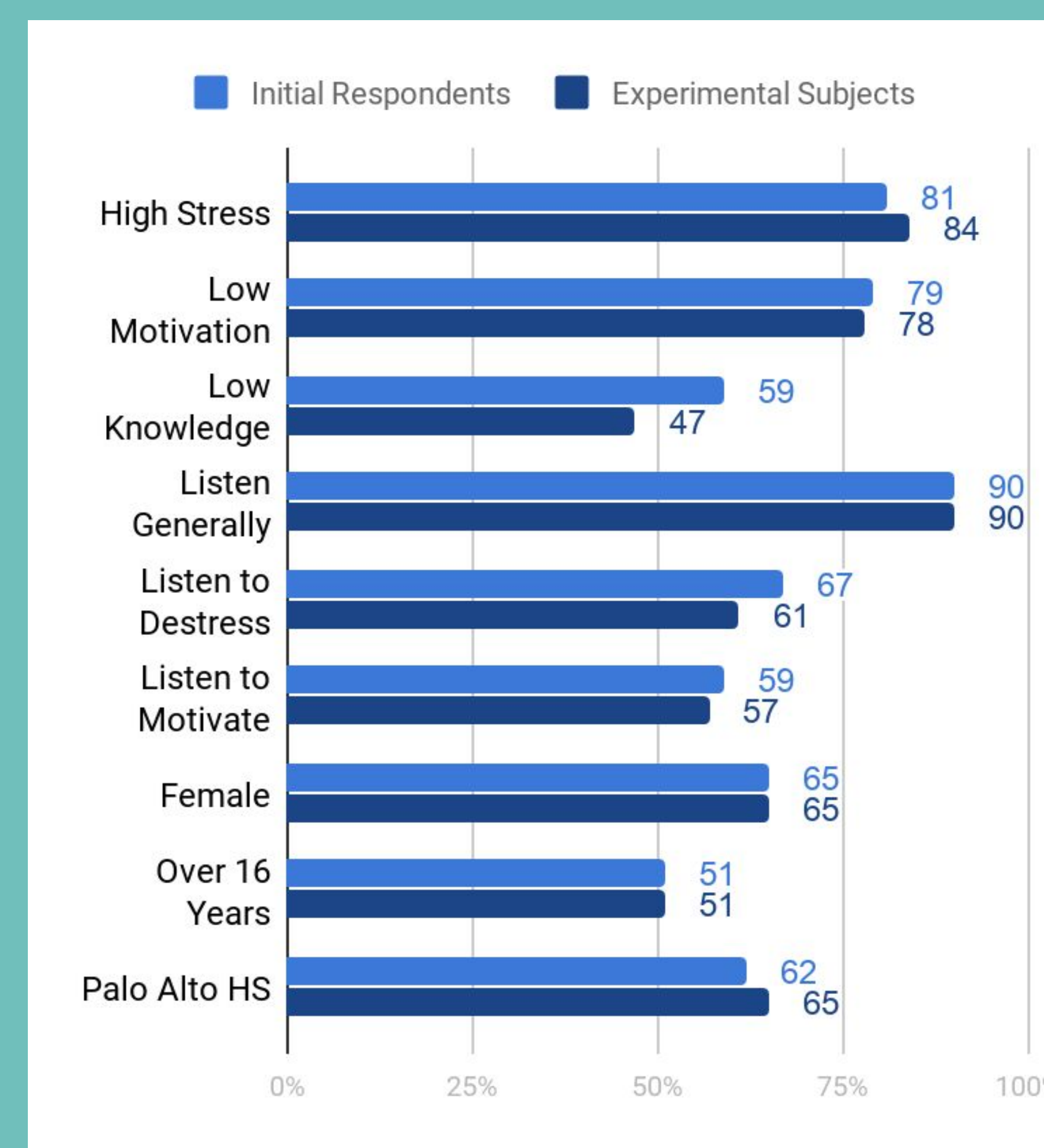
"Often" or "Very Often"

**59% Listen to Increase Motivation**

"Often" or "Very Often"

## Characteristics of Experimental Subjects

Figure 3: Experimental Subjects Compared to Initial Respondents



The characteristics of the 49 experimental subjects closely resemble those of the 283 initial respondents of the first survey.

## Experimental Data

Figure 4: Music's Perceived Ability to Reduce Stress

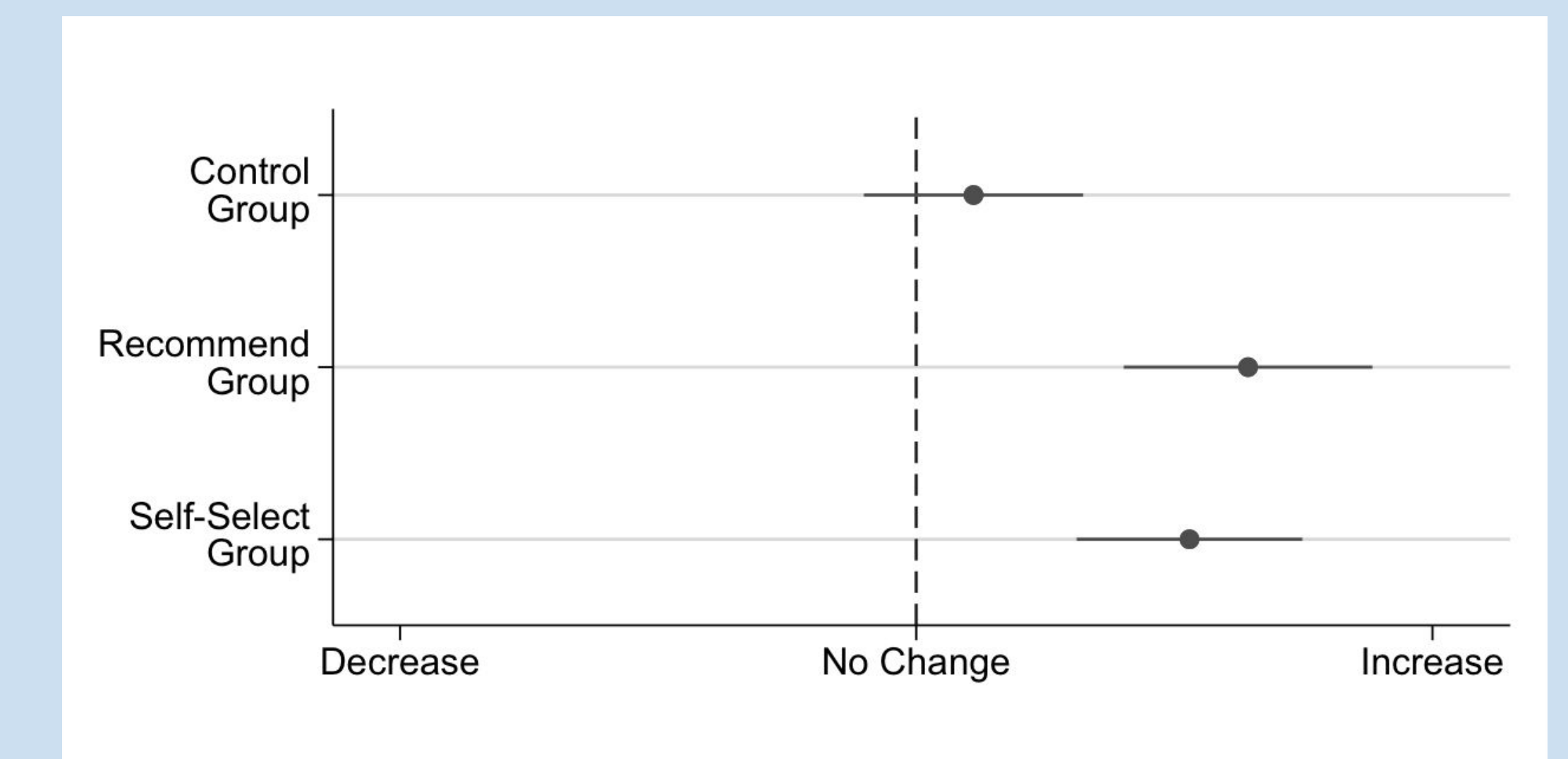
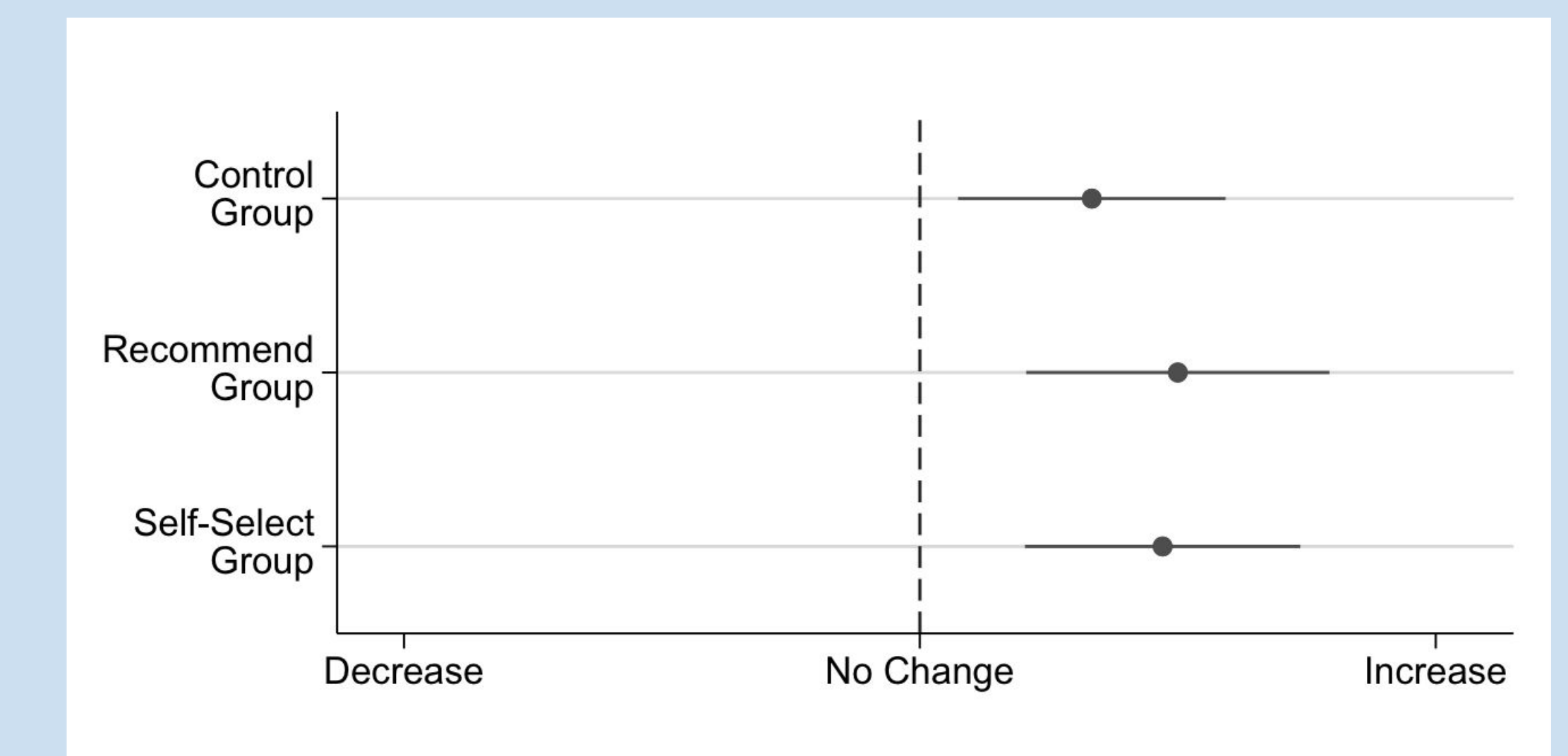


Figure 5: Music's Perceived Ability to Increase Motivation



Respondents were asked if they thought participating in this study increased, decreased, or had no effect their ability to destress and gain motivation. The average responses are plotted in Figures 4 and 5 with 95% confidence intervals.

## Discussion, Analysis, and Evaluation

The initial survey found that there are problems among high school students in Palo Alto with regard to **too much stress, a lack of motivation, and a lack of knowledge about music's health benefits**. Additionally, the large proportion of frequent music listeners provides a population that could **potentially benefit** if music proves to decrease stress and increase motivation, the conclusion which ended up surfacing in the experiment. Participants from both the Recommend and Self-Select groups believed that the music they listened to decreased their stress and increased their motivation, confirming the findings of past studies.

## Conclusions, Implications, and Next Steps

These findings conclude that **through deliberate music use, high school students may decrease stress and increase motivation**. The easy accessibility and frequent use of music magnify this finding and demonstrate the immense potential that deliberate music use has in benefiting students, **expanding farther than just Palo Alto**.



**Repeat Experiment**

Gather a larger sample size and only test one treatment group.



**Change Subjects**

Test subjects from a different area or age range.



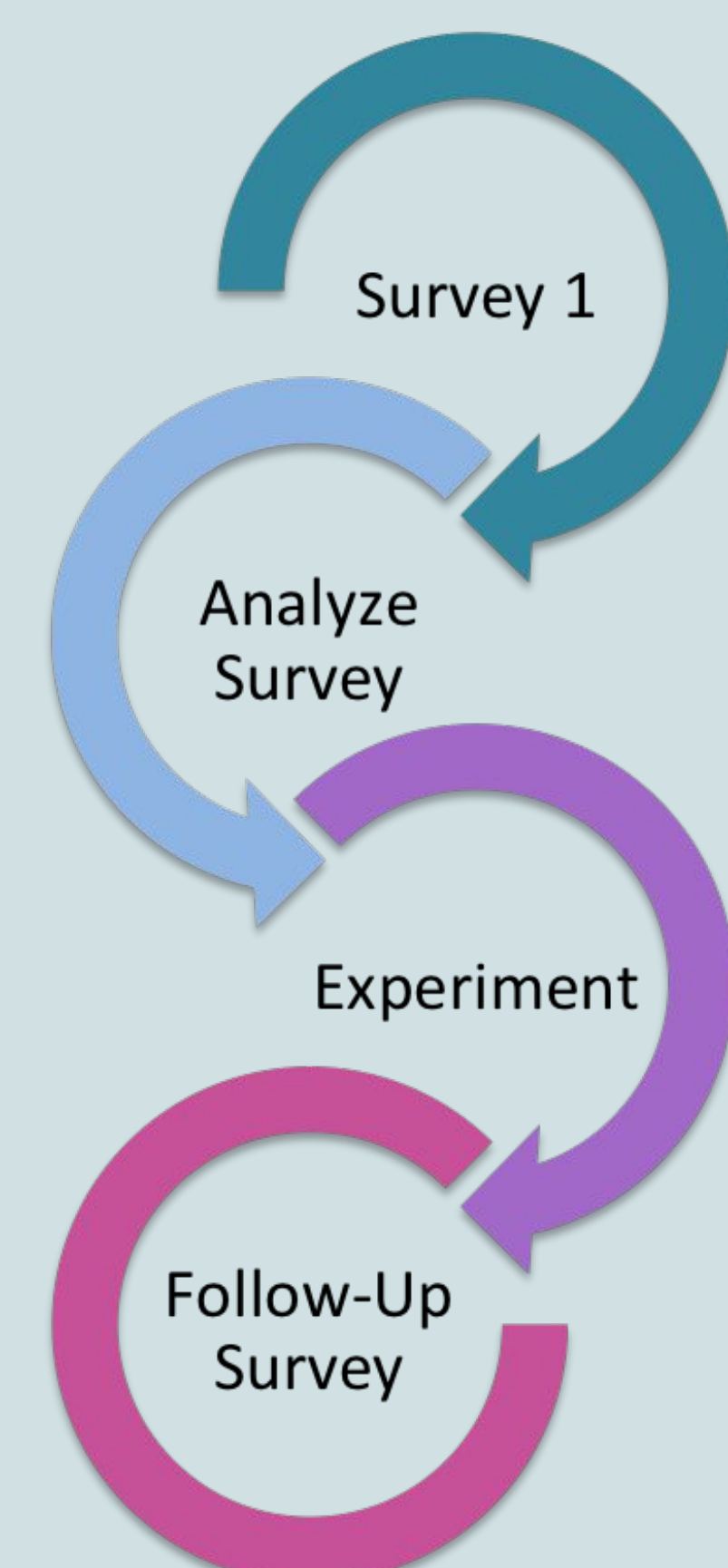
**Spread Awareness**

Awareness sparks the beginning of any change.

## Research Methodologies

Survey Distribution: The first survey was distributed through class Facebook pages and AAR classes from Paly and Gunn. Experiment participants were contacted by email.

Figure 2: Graphic depicting research methodologies



- Levels of student stress, motivation, and confidence
- Knowledge of music's health benefits
- Music preferences
- Is there a problem that needs to be addressed?
  - High stress, low motivation, low knowledge
- **Group 1: Recommended**
  - Songs provided by experimenter
- **Group 2: Self-Select**
  - Songs chosen by participant
- **Group 3: Control**
  - No deliberate change in listening habits
- Determine change in stress and motivation, before and after experiment

Survey 1 produced 283 responses. Of those, 49 participated in the experiment and took the follow-up survey, accounting for 14 in Group 1, 17 in Group 2, and 18 in Group 3.

## Acknowledgements & References

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Scutti, S. (2017, August 8). Study casts doubt on music therapy for kids with autism. CNN Health website: <http://www.cnn.com/2017/08/08/health/autism-music-therapy-study/index.html>  
Storrs, C. (2017, March 31). Surgery patients hear benefits of music therapy loud and clear. CNN. Retrieved from <http://www.cnn.com/2015/08/13/health/music-therapy-surgery-patients/index.html>  
Yehuda N. Music and Stress. *Journal Of Adult Development* [serial online]. June 2011;18(2):85. Available from: Advanced Placement Source, Ipswich, MA. Accessed October 30, 2017.