Impact of Vibrational Frequencies on State Mood and Mindfulness

Erica VanSteenhuyse: evanstee@msudenver.edu
James Webster, Erica Payne, Zahava Heydel, & Dr. Michael Rhoads

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INTRODUCTION

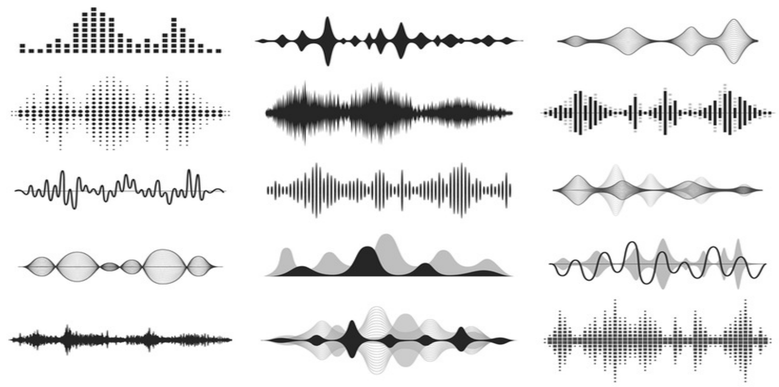
Vibration is a part of everyday life, whether we are aware of it or not. Everyone experiences vibration in a variety of different ways: intentionally with music and speech, environmentally by cars, computers, phones, etc., and unconsciously, because there are many vibrational frequencies that are not audible to the human ear.

Previous studies have focused on whether vibrational exposure impacts mood or impacts mindfulness, but the aim of the current study was to examine whether exposure to vibration of high and low frequencies has any impact on state mood and mindfulness levels together. Participants (n = 28) were assigned to listen to either high frequencies (20,000Hz and above) or low frequencies (50Hz or below). Regardless of intervention, participants completed the State Mindfulness Survey (SMS) and the Positive and Negative Affect Schedule (PANAS) questionnaires before and after their retrospective intervention.

METHOD

- **Design**: Using a quasi-experimental method, we compared pre-intervention survey results with post-intervention survey results to see if there was any significant change over time by condition interactions for any of the dependent variables
- **Participants**: The participants of this study were 28 students from an Introductory Psychology course at an urban mid-western University. Of the 28 participants, 22 identified as female, 5 identified as male, and 1 identified as genderqueer. The mean age of participants was 21.4 years old.
- **Procedure**: During intervention, participants took the SMS and PANAS pre- and post-intervention. The intervention consisted of playing 3 pure-tones for 30 seconds each. If in the high-group: 20,000 Hz, 22,500 Hz, and 25,000 Hz tones were played. If in the low-group: 100 Hz, 50 Hz, and 5 Hz tones were played.

Figure 1: Complex Sound Wave Examples



RESULTS

No outliers or univariate outliers were found in the data set. To test whether exposure to high or low frequencies had any impact on state mood and/or mindfulness levels, a one-way repeated measures MANOVA was conducted to examine whether there were significant differences between conditions in positive affect, negative affect, and mindfulness (body and mind) across time.

No significant interaction between time and condition on the dependent variables was found: $F(4,18) = .14$, $p = .97$, partial $h2 = .03$. Using the Wilks' Lambda criterion, combined dependent variables did not show a significant time effect, $F(4,18) = .89$, $p < .50$, partial $h2 = .16$.

Table 1: Descriptive Statistics

PA-PANAS1	*M*	(SD)	BODY-SMS1	*M*	(SD)
High Group	30.3	9.77	High Group	22.1	5.98
Low Group	27.38	7.83	Low Group	21.85	6.03
Total	28.65	8.64	Total	21.96	5.87
PA-PANAS2	*M*	(SD)	BODY-SMS2	*M*	(SD)
High Group	29.2	9.3	High Group	21.2	4.66
Low Group	27.23	9.91	Low Group	19.85	5.13
Total	28.09	9.48	Total	20.43	4.87
NA-PANAS1	*M*	(SD)	MIND-SMS1	*M*	(SD)
High Group	16	6.94	High Group	55.6	15.66
Low Group	16.08	4.77	Low Group	56	12.85
Total	16.04	5.67	Total	55.83	13.8
NA-PANAS2	*M*	(SD)	MIND-SMS2	*M*	(SD)
High Group	16.3	5.72	High Group	56.6	9.22
Low Group	15.62	5.68	Low Group	56.23	14.39
Total	15.91	5.58	Total	56.39	12.15

PURPOSE

- All vibration has some kind of impact on its atmosphere as it moves through the air and eventually comes into contact with matter
- Vibration can travel through gas, liquid, and solids. People are constantly surrounded by a unique combination of vibrations
- This exposure to different vibrational frequencies, even those we can't hear, may be a form of priming on individual state mindfulness and mood levels.

Studies have shown that exposure to low frequency vibrations can decrease mood and mindfulness, and exposure to high frequency vibrations can increase mood and mindfulness. The purpose of this study is to explore this hypothesis in further detail with new methodology.

DISCUSSION

The present study examined whether exposure to different kinds of high or low frequencies impact state mood and mindfulness levels. The results showed no significant interaction between high or low frequency exposure and current mood and/or mindfulness levels. However, this insignificance could have been because of differences in this study versus previous studies.

There were several limitations in this current study that may have contributed to this insignificant finding: insufficient sample size, insufficient amplitude size, and combining studies together could have had a negative impact on mood and mindfulness despite any intervention efforts. Due to these limitations, it may be premature to draw and final conclusions about the impact of frequency exposure on state mood and mindfulness. Therefore, a follow-up experiment was created to decrease these limitations: get more participants, use a larger speaker for amplitude increase, and streamline the procedure with only one experiment. Unfortunately, COVID-19 was a huge hinderance on completion of this follow-up experiment due to campus closures.