

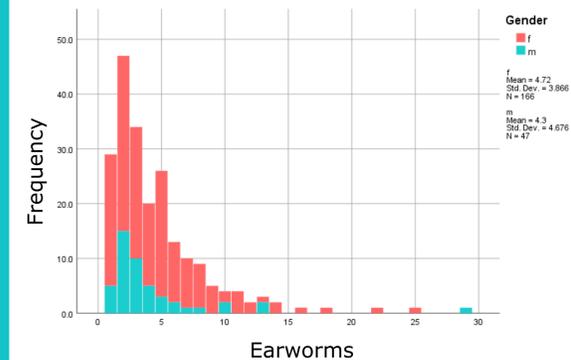
Introduction

- An earworm is defined as hearing music in the "mind's ear"¹. Affect is defined as feelings.
- In prior qualitative research, some participants reported feeling anxious when they had an earworm².
- Prior research found that people higher in neuroticism reported more earworms and found them more bothersome³.
- Hypothesis 1: Individuals will report higher levels of anxiety during earworm presence vs. earworm absence.
- Hypothesis 2: People who score higher in neuroticism will rate their anxiety higher during earworm presence vs. earworm absence.

That song that is **stuck in your head** may actually have a **calming effect** in times of stress.

Other Results

Histogram of Total Earworms by Gender



Discussion

- Results provide evidence that suggests the opposite of the hypothesis (i.e. that earworms may have a calming effect).
- The study was limited due to the nature of self-report research and that people likely forgot to fill out the PANAS during some earworm experiences.
- Further research, especially of an experimental nature, is necessary to investigate the possible link between earworms and stress-reduction.
- If earworms do have a calming effect during times of stress, people may be able to decrease negative earworm experiences by re-evaluating their perception of earworms as positive.

References

- ¹Sacks, O. (2007). *Musicophilia: Tales of music and the brain*. New York: Alfred A. Knopf.
- ²Williamson, V. J., Jilka, S. R., Fry, J., Finkel, S., Müllensiefen, D., & Stewart, L. (2011). How do "earworms" start? Classifying the everyday circumstances of Involuntary Musical Imagery. *Psychology of Music, 40*(3), 259–284. doi:10.1177/0305735611418553
- ³Floridou, G. A., Williamson, V. J., & Müllensiefen, D. (2012). Contracting earworms: The roles of personality and musicality. *12th International Conference on Music Perception and Cognition and the 8th Triennial Conference of the European Society for the Cognitive Sciences of Music*, 302–310. <https://doi.org/10.1146/annurev.pu.03.050182.002223>

Acknowledgements

A sincere thank you to Danielle Striemer, Dr. Rodney Schmalz and Kendall Deleurme for their guidance and help this year.

Earworm Present

vs.

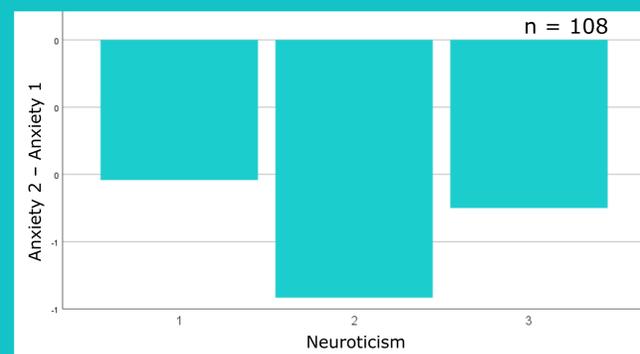
Earworm Absent

Crosstabulation of Anxiety from Part 2 and Part 1:

Anxiety_1		Anxiety_2					Total
		1	2	3	4	5	
1	17	6	4	0	1	28	
2	6	7	3	1	1	18	
3	6	2	8	3	1	20	
4	10	10	6	1	4	31	
5	3	2	2	4	5	16	
Total	42	27	23	9	12	113	

Legend:
— = higher with no earworm
— = lower with earworm

Sign Test: $Z = -3.002$
 $p = 0.003$

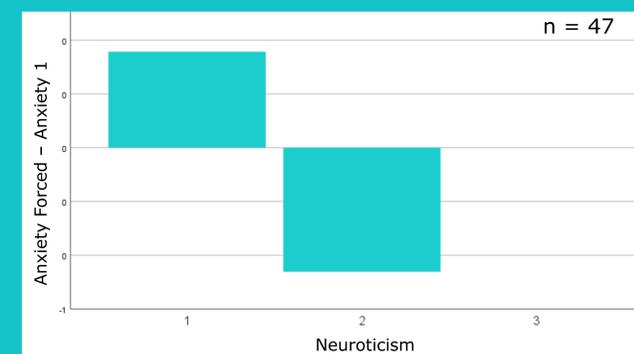


Kruskal-Wallis Test: $H = 1.452$
 $p = 0.484$

Crosstabulation of Anxiety from Forced Part 2 and Part 1:

Anxiety_1		Anxiety_Forced					Total
		1	2	3	4	5	
1	7	2	3	3	0	15	
2	3	1	2	0	0	6	
3	1	3	4	2	1	11	
4	2	3	2	2	1	10	
5	1	1	2	1	4	9	
Total	14	10	13	8	6	51	

Sign Test: $Z = -0.696$
 $p = 0.486$



Kruskal-Wallis Test: $H = 3.082$
 $p = 0.214$

Methods

- Part One:
 - Questionnaires were given to assess demographics, music experience & importance, baseline feelings (e.g. anxiety), and personality traits (e.g. neuroticism).
- Part Two:
 - Longitudinal (Jan-Mar 2019)
 - Participants filled out modified positive and negative affect schedule (PANAS) when experiencing an earworm.
 - Participants were asked about the earworm experience (e.g. what song, earworm duration).
 - At two random points, participants were asked to fill out the PANAS within 24 hours (aka forced PANAS) to establish data about feelings when an earworm was not occurring.

PANAS example:

This scale consists of a number of words that describe different feelings and emotions. Read each item and then choose the most appropriate response for each word in the scale below. Indicate to what extent you have felt this way within the **past 24 hours**. Unless we have prompted you to fill this questionnaire out at a specific time, please only fill out the questionnaire if you are **currently** experiencing an earworm. If you experienced one earlier in the day but are not currently experiencing it and forgot to fill out the questionnaire earlier, kindly skip filling it out this time.

	Very Slightly or Not at All	A Little	Moderately	Quite a Bit	Extremely
Strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guilty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anxious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Modified PANAS (Q 5-7) Likert scale with 'anxious' highlighted