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The effect of music on cognitive emotional response in undergraduate students studying health-related courses: a pilot study

With widening participation high on the agenda of institutes of higher learning, the current university student population globally seems to have a wide range of age, gender, religion, and ethnicity. The student population is under constant stress, which may impact their learning experiences negatively. Music is widely known to relax and assist one's mood. The Mozart effect refers to the specific claim that Mozart's music may improve the individual's performance in spatial-temporal tasks (1). In the present study we chose to investigate the impact of playing via audio-recording, 5 min of Mozart's Symphony No. 5, which was composed by Wolfgang Amadeus Mozart in The Hague in 1765, on cognitive emotional response in 300 undergraduate students studying health-related courses at the Birmingham City University, UK. Verbal consent was obtained from the students taking part in this pilot study and the questionnaire was trial run with 10 participants (5 male and 5 female).

Students completed a questionnaire sub-divided into 3 sections:

- A) Demographics (age, gender, marital status, religion, and ethnicity);
- B) Their regard for music (mood prior to hearing Mozart's music, the effect of Mozart's music on mood, and the preferred type of music);
- C) Subsequent cognitive emotional responses to Mozart's music. Non-gender based questionnaire responses of demographics are shown in the Table. The subsequent cognitive responses following the playing of Mozart's music was determined using the chi-Square test (Microsoft Excel 2003). Throughout, $P < 0.05$ was considered significant.

Generally, the results show that the majority of the sample cohort were in the age range of 11-20 years (44.4%), 88.2% female, 69.8% single, 59.5% Christian, and 68.1% white (Table). Their mood before hearing Mozart's music was neutral and most participants said that music moderately relaxed them and that they preferred pop music. Specifically, the married and divorced figures were associated with the substantial number of older students aged 21-60 years (55.6% of the sample) (Table 1). There was an expected decrease in the number of participants with age. The rate of Muslims and other religions were 13.2% and 17.4% of the sample, respectively. Black and Asian ethnicities were close at 18.8% and 24.2%, respectively. The mood of "easy" was 26.0% and "moderate" was 50.5%. Pop and Indie represented 44.5% and 35.4%, respectively. Jazz and classical preferences were virtually identical (Table 1). The chi-square analysis ($df = 6$) showed that cognitive emotional response and response rating (strongly agree-strongly disagree) did not differ significantly between actual (A) and

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Table. Non-gender-matched questionnaire responses.

Gender	Age	Yr.	Marital status	Religion	Ethnicity				
Male	23	11-20	83	Single	139	Christian	113	White	128
Female	172	21-30	62	Married	35	Muslim	25	Black	24
		31-40	24	Cohabiting	19	Jewish	1	Asian	31
		41-50	14	Separated	0	Hindu	11	Chinese	0
		51-60	4	Divorced	5	Sikh	7	Other	5
				Widow/widower	1	Other	33		
Total	195		187		199		190		188
				Mood before music played		Effect of music on mood		Preferred type of music	
				Exhilarated	2	Very easy	15	Pop	113
				Happy	50	Easy	51	Indie	90
				Neutral	129	Moderate	99	Jazz	19
				Sad	12	Difficult	26	Classical	20
				Angry	6	Very difficult	5	Folk	12
				Total	199		196		254

expected (E) [$T_A = 1162$; $T_B = 1178$] frequencies at $P = 0.947$ and 0.928 , respectively.

Clearly cognitive mood was enhanced by classical music amongst the participants. This is in line with a previous study carried out by Labbé et al. (2), which demonstrated that listening to classical and self-selected relaxing music after exposure to a stressor, resulted in a significant reduction in

anxiety, anger, and sympathetic nervous system arousal in comparison with participants who sat in silence or listening to heavy metal music. We recommend light classical music played in a lecture room prior to the start of a lecture to enhance the learning capacity of students. Follow-up studies should include physiological responses (blood pressure, ECG, EEG, and respiratory rate) and cortisol assays to music stimuli.

References

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