

Music Therapy applications for promoting arousal and emotional responses in those with Disorders of Consciousness: preliminary analysis of a neurophysiological and behavioural study

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In work with minimally responsive populations, music therapists use a range of receptive techniques, which until recently have received little scrutiny from an neurophysiological perspective. With disorders of consciousness (DOC), the use of salient music and simple improvised music entrained to respiration are advocated, based on the expectancy of arousal and emotional responses to assist in assessment focused on the detection of awareness. To underpin this work with objective scientific data a multiple base line within subjects study comparing EEG, heart rate variability, respiration and behavioural responses of 20 healthy controls with 10 DOC patients diagnosed as in vegetative states and 10 as minimally conscious has been undertaken. Controls and patients were presented with live salient music, improvised entrainment, recordings of disliked music, white noise and silence. Neurophysiologic and behavioural measures were recorded using a 32 channel XLTEK© video EEG system, with a piezoelectric respiratory belt, and analysed using MATLAB and EEGLAB. Significant findings within EEG power spectra and topographic measures, behavioural and respiration data suggest music therapy techniques are appropriate for promoting arousal in the DOC cohorts. Preliminary analysis of data also indicate a range of neurophysiological responses corresponding to both positive and negative affect across subjects. These findings will be discussed in relation to the extant literature and relevance to the development of evidence based music therapy in this field.

Keywords: "Assessment", "Disorders of Consciousness", "Music Therapy", "Arousal".