

## A Survey of Musically-Induced Chills: Emotional Characteristics and ‘Chills Moments’ in Music

Scott Bannister

*Department of Music, Durham University, United Kingdom*  
[scott.c.bannister@durham.ac.uk](mailto:scott.c.bannister@durham.ac.uk)

### ABSTRACT

#### Background

Musically-induced chills have received some attention in music and emotion research (Grewe et al., 2007; Panksepp, 1995); however, little is known about the emotional characteristics of chills, although theories have linked the experience to social separation (Panksepp and Bernatzky, 2002), and the mixed emotional concept of ‘being moved’ (Wassiliwizky, Wagner, and Jacobsen, 2015). In addition, the links between chills and various musical features or moments are still unclear.

#### Aims

This study aims to develop a preliminary understanding of the emotional characteristics of chills, and to collect a variety of musical excerpts and features that elicit chills in different listeners.

#### Method

A survey was administered to participants (N = 375), collecting open ended responses regarding an experience of musical chills (subjective feelings, musical features, situation). Additionally, two extra chills pieces were requested to be described by participants (sound, notable features, specific chills moments).

#### Results

The open-ended responses were analyzed through the process of thematic analysis, coding raw data and developing broader themes. Results suggest that the experience of chills is pleasurable but often involves mixed emotions of happiness and sadness; accordingly, participants often used language such as ‘being moved by the music’ or ‘being touched’, terms previously associated with mixed emotional states (Kuehnast et al., 2014). Responses often contained references to tears or crying, alongside reports of gooseflesh, tingling sensations and feelings in the chest, suggesting that chills reflect strong emotional experiences. In terms of specific chills moments across musical excerpts, five main themes emerged, namely ‘entrances of instruments’, ‘peaks and build up’, ‘social concepts’, ‘transitions and change’, and ‘voice and words’. These themes represent aspects of music such as dynamic and structural changes, the effects of the human singing voice, and more abstract social concepts, such as the presence of many voices, or the musical unity of a large orchestra.

#### Conclusions

The data indicate that chills are pleasurable, but often reflect mixed emotions, possibly like being moved (Wassiliwizky,

Wagner, and Jacobsen, 2015). Additionally, new evidence regarding specific chills moments in music suggest that although dynamic and musical change may elicit chills, there is a need to consider the role of perception and experience of social relationships with regards to musical chills; this could be within a piece of music (perception of unity and togetherness), or between the music and listener (comfort and reducing loneliness; empathizing with the human voice). Further empirical work is required to test existing theories of musical chills. The current study provides one of the first investigations into the various emotional qualities of chills, beyond feelings of peak pleasure. Additionally, the study presents the first extensive dataset regarding musical excerpts that elicit chills, and specific moments in the pieces that are linked to the experience.

#### Keywords

music; emotion, chills; induction mechanisms; open-ended responses

### REFERENCES

- Grewe, O., Nagel, F., Kopiez, R., and Altenmüller, E. (2007). Listening to music as a re-creative process: Physiological, psychological, and psychoacoustical correlates of chills and strong emotions. *Music Perception*, 24(3), 297-314.
- Justin, P. N. (2013). From everyday emotions to aesthetic emotions: Towards a unified theory of musical emotions. *Physics of Life Reviews*, 10(3), 235-266.
- Kuehnast, M., Wagner, V., Wassiliwizky, E., Jacobsen, T., Menninghaus, W. (2014). Being moved: Linguistic representation and conceptual structure. *Frontiers in Psychology*, 5, 1242.
- Panksepp, J. (1995). The emotional sources of “chills” induced by music. *Music Perception: An Interdisciplinary Journal*, 13(2), 171-207.
- Panksepp, J., and Bernatzky, G. (2002). Emotional sounds and the brain: The neuro-affective foundations of musical appreciation. *Behavioural Processes*, 60(2), 133-155.
- Wassiliwizky, E., Wagner, V., and Jacobsen, T. (2015). Art-elicited chills indicate states of being moved. *Psychology of Aesthetics, Creativity, and the Arts*, 9(4), 405-416.