

Creative Arts and Music Listening in Children and Adolescents with Mental Disorders. A Pilot Study.

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Background

The rising prevalence of children and adolescents with emotional and behavioral disorders requires multimodal treatment concepts and adjuvant therapeutic approaches to support the search for identity and reinforcement of the Id. Music-based and artistic interventions can play a central role within the entire indication spectrum (Fegert, 2011; Stegemann et al., 2008). Scientific evidence of the efficacy of these measures in most cases, however, is yet outstanding. Psychoneuroendocrine responses to music-based interventions (including music listening and singing) were examined in various naturalistic settings (Kreutz, et al., 2012; Chanda & Levitin, 2013). Early studies demonstrated the efficacy of active artistic measures (singing) on the psychoendocrine response in non-clinical settings (Kreutz et al., 2004; Kreutz, 2014).

Main Issues and Objectives

- Examination of psychological-physiological effects of music-based and artistic interventions in children and adolescents with psychiatric disorders;
- Evidence of the feasibility and efficacy of adjuvant artistic measures in the target group;
- How do different creative-artistic interventions (Study 1) and music listening (Study 2) influence the hormone concentrations of cortisol, oxytocin and immunoglobulin A (IgA) in the saliva as well as the perceived mood of children and adolescents with mental disorders?

Methods

Patients hospitalized in the Department of Child and Adolescent Psychiatry with a diagnosis of a mental disorder according to ICD-10 (WHO, 2013) participated in the study. These patients were admitted for psychiatric treatment of: neurotic, stress-related, as well as, somatoform disorders (ICD-10: F4), affective disorders (ICD-10: F3), behavioral and emotional disorders (ICD-10: F9), developmental disorders (ICD-10: F8), syndromes associated with physiological disturbances and physical factors (ICD-10: F5), personality and behavioral disorders (ICD-10: F6).

- In 'Study 1: Creative Arts', subjects (N=25; female: 15, male: 10; age range: 12-19 years) were randomly assigned to three different 90 minute creative-artistic workshops at the same time of day (14:00–15:30) and on the same day of the week: Textile Design (N=8), Drama (N=12), Clownery (N=5).
- In 'Study 2: Music Listening', subjects (N=8; female: 6, male: 2; age range: 12–18) participated in one 45 minute session with music listening (John Cage: 'In a Landscape', 'Dream', 1948) in combination with relaxation techniques.

In both studies, subjects submitted a saliva sample directly preceding and following the respective interventions for evaluation of cortisol, secretory immunoglobulin A (SIgA) and oxytocin. Additionally pre- and post-values pertaining to subjectively perceived mood using the 'Multidimensional Mood Questionnaire' (MDMQ, German version: Steyer et al., 1997) were taken. This questionnaire assesses the current mental state using three bipolar subscales ('good/bad mood', 'alertness/tiredness', 'calmness/restlessness').

Commentary 1:

This study was approved on 31.07.2014 by the Salzburg State Ethics Commission (Registration number: 415-E/1787/4-2014).

Commentary 2:

The study was performed in cooperation with the Department of Child and Adolescent Psychiatry, Landeskliniken Salzburg, University Mozarteum, Salzburg University, Kunsthilfe Salzburg, Focus Area 'Science and Arts' (Program Area 'ConTempOhr'). This project was made possible by a generous grant by the Salzburg Whitsun Festival.

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Results

- 'Study 1: Creative Arts' showed reduced cortisol values in all groups. In the Drama group, the reduction was statistically significant ($p=0.031$; average reduction $0.1304 \mu\text{g/dl}$; $SD=0.1825$); in the Textile Design group, the trend was recognizable ($p=0.066$; average reduction $0.0739 \mu\text{g/dl}$; $SD=0.0958$) (Fig. 1). In addition, the analysis of the subjectively perceived mood in the Textile Design group showed a significant improvement in the mood ($p=0.017$; with average improvement of 4.1; $SD=3.758$); in the Clownery group a positive trend in the categories alertness ($p=0.068$; increased by 6.6; $SD=5.941$) and calmness ($p=0.052$; increased by 4.2; $SD=3.421$) (Fig. 3–5) was observed.
- 'Study 2: Music Listening' a tendency in the reduction of cortisol values (Fig. 1) was demonstrated. In addition, a positive trend in the subjectively perceived mood in the categories alertness ($p=0.088$; increased by 5.8; $SD= 8.391$) and calmness ($p=0.053$; increased by 3.6; $SD=4.406$) was visible (Fig. 4–5).

There were no significant changes for immunoglobulin A in both studies (Fig. 2). Oxytocin values taken in both studies are currently being analyzed.

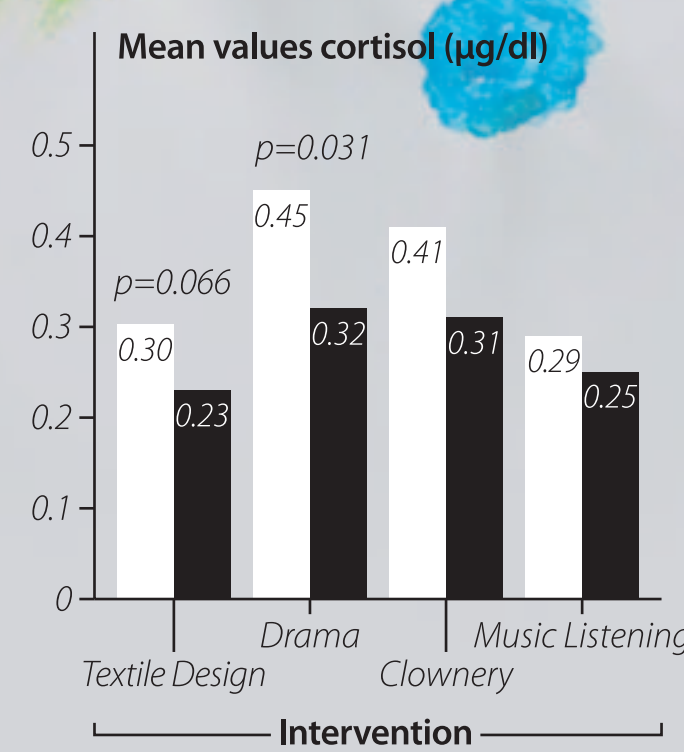


Fig. 1 Cortisol pre-post (Study 1: Textile Design, Drama, Clownery and Study 2: Music Listening)

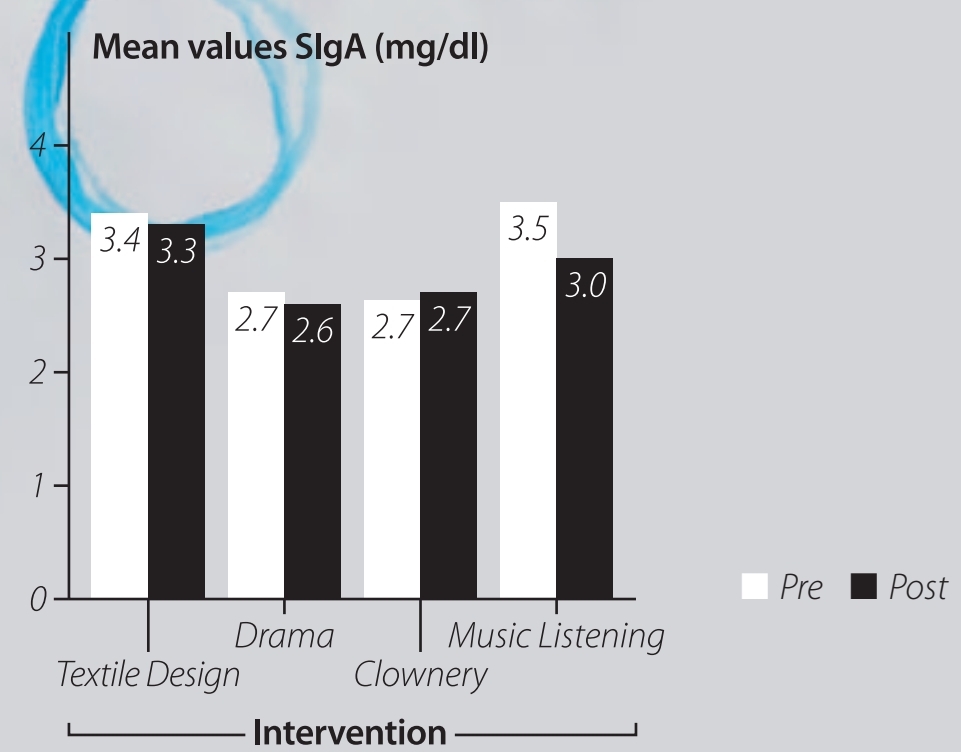


Fig. 2 Secretory immunoglobulin A (SIgA) pre-post (Study 1: Textile Design, Drama, Clownery and Study 2: Music Listening)

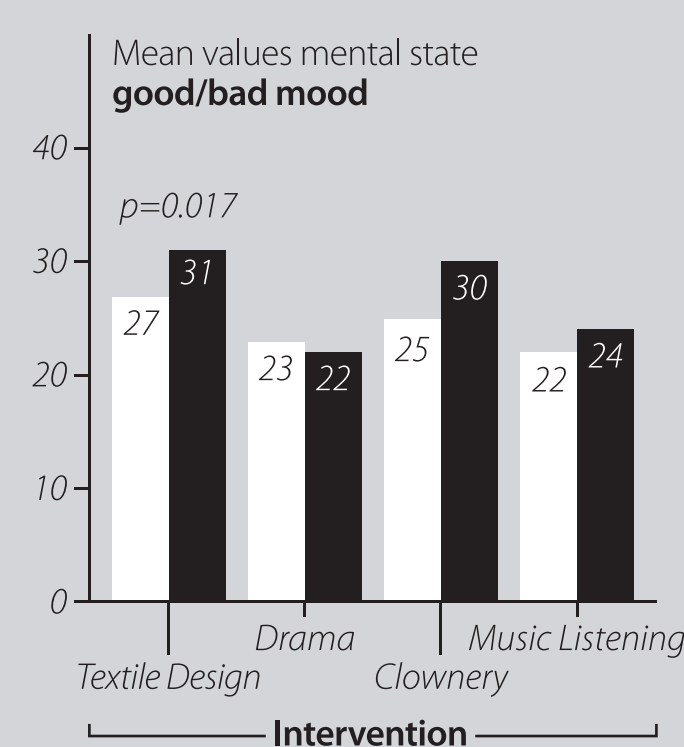
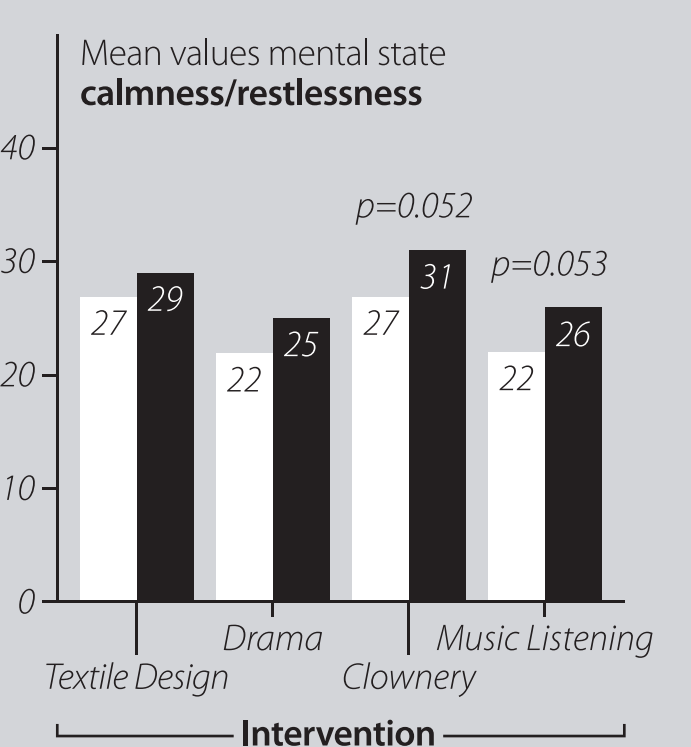
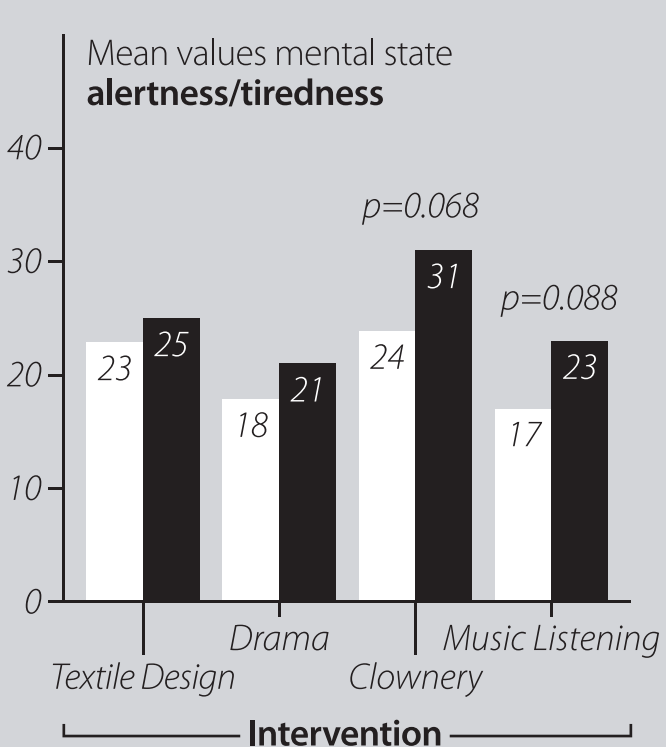


Fig. 3–5 Mean values pre-post for each 'Multidimensional Mood Questionnaire' subscale ('good/bad mood', 'alertness/tiredness', 'calmness/restlessness') (Study 1: Textile Design, Drama, Clownery and Study 2: Music Listening)



Discussion

The results suggest overall the psychophysiological efficacy of musical and arts interventions in children and adolescents suffering from mental disorders, whereby the heterogeneity of the data, the limited number of subjects and the lack of a control group limit the result assertions. While euphoria and enthusiasm among participants is not easily captured in the study results, this feedback supports its potential. Nevertheless, due to the nature of the symptoms and daily fluctuation in sensitivities, there were major methodological challenges in realizing a long-term, controlled, comparative study with correspondingly large patient numbers in the clinical setting.

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