Music therapy in the treatment of primary headache disorders

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Abstract
Introduction
Primary headache disorders are common in the general population. Besides pharmacological treatment, psychological interventions are available for patients with headache disorders. To date, four studies have evaluated the use of music therapy in the treatment of patients with primary headache disorders. The aim of this review was to discuss the use of music therapy in the treatment of primary headache disorders. (tension-type headache and migraine).

Conclusion
Although effective in reducing the frequency of pain, unspecific effects of expectancy, therapeutic relation, setting and “treatment as usual” (headache diary, headache education and so on) seem to account for the majority of therapeutic outcome, whereas specific effects relating to the music therapeutic techniques applied cannot be identified and need further investigation.

Introduction
Primary headache disorders such as migraine and tension-type headache (TTH) are among the most disabling conditions. They are highly prevalent in children, and increase in frequency during adolescence, particularly in females. Patients with primary headache disorders also commonly report psychiatric comorbidities. In the treatment of TTH simple analgesics and non-steroidal anti-inflammatory drugs are recommended. Pharmacological treatment in patients with migraine addresses the prevention of future attacks and treatment of acute attacks. For the pharmacological treatment of acute migraine and TTH, ibuprofen for children (>6 years) and paracetamol and sumatriptan nasal spray for adolescents (>12 years of age) are effective and considered first choice. Furthermore, a variety of psychological treatment approaches for headaches in adults, children and adolescents exist. Previous meta-analyses have shown that relaxation and cognitive–behavioural therapy are effective in pain control and lead to improvement in symptoms (especially frequency of headache) in children and adolescents with headache disorders. The relief of pain in the medical setting and the treatment of patients with chronic painful conditions are also subject to research within the field of music therapy. This narrative review discusses how music therapy is used in the treatment of primary headache disorders.

Discussion
To date, four studies have evaluated the use of music therapy in the treatment of patients with primary headache disorders. One study addressed adult patients, one included children between 8 and 12 years, and two studies (one study and its corresponding pilot trial) addressed adolescents between 12 and 17 years. Risch et al. evaluated a music therapy group treatment in 34 adults with chronic headache. The treatment outcome was assessed using several self-rating scales to evaluate pain experience and psychological variables, such as depression, before the treatment, after treatment and within a 6- to 12-month follow-up. The treatment was compared with a waiting-list condition. Although no significant post-treatment effect was found, patients reported less frequency of pain and improved ability of pain control in the follow-up assessment. Music therapy enabled the patients with chronic headache to develop creative solutions, resulting in pain relief. Evidence that music therapy might be effective in the treatment of children and adolescents with primary headache disorders comes from three studies, two of which were a randomized controlled trial. The study by Oelkers-Ax et al. evaluated a music therapy treatment manual for children with migraine in a three-arm (music therapy vs. butterbur root extract medication vs. placebo) randomized controlled trial with 58 patients. Patients were included if they were between 8 and 12 years of age, reported an initial onset of migraine 1 year before the start of the trial, and experienced an average of two or more migraine attacks for each of the 3 months before screening and for 2 months of baseline observation (pain diary). Patients were excluded if they reported prophylactic medication intake for migraine for a 3-month period before screening, additional non-migraine types of headaches on more than 6 days per month, the intake of analgesics on 10 or more days per month, alcohol or drug abuse, intake of neuroleptic or antidepressant medication within 3 months before screening, experience and psychological variables.

and/or allergy to the ingredients of the medication provided during the study. The music therapy treatment plan included 15 hours of treatment with one weekly session for 3 months. The results showed no significant differences regarding changes in pain intensity by post-treatment responder rates (at least 50% reduction compared with baseline) between the music therapy (5.9%), butterbur root extract medication (21.1%) and placebo treatment (15.8%) groups. Follow-up responder rates regarding pain intensity were also not significantly different between groups, with comparable responder rates in the music therapy (29.4%), butterbur root extract medication (33.3%) and placebo treatment (22.2%) groups. However, post-treatment responder rates regarding pain frequency (at least 50% reduction in the frequency of occurrence) showed significant differences between the music therapy (70.6%), butterbur root extract medication (26.3%) and placebo treatment (26.3%) groups. Follow-up responder rates again showed no significant differences between the music therapy (58.8%), butterbur root extract medication (53.3%) and placebo treatment (33.3%) groups regarding changes in pain frequency. The study investigated the importance of psychiatric comorbidity and its impact on the therapy outcome using a semi-structured diagnostic interview for mental disorders in children and adolescents, a depression inventory based on the Children’s Depression Inventory, a stress questionnaire for children, and parental ratings of behavioural and emotional problems using the Child Behaviour Checklist. In an exploratory analysis, those measures were included in the analysis and no significant effect on any of the outcomes was found.

A pilot study25 adapted and tested the previously published treatment for children with migraine in adolescents with primary headache disorders (migraine and TTH). In that pilot study, two dose-frequency modes of treatment (standard vs. compact) were compared in an outpatient setting with 19 patients. The standard treatment comprised 12 weekly sessions (50 minutes each) within 12 weeks, whereas the compact treatment comprised two group sessions in addition to two daily sessions (50 minutes each) on 5 consecutive days. The results showed a statistically significant pre- to post-treatment effect combining both treatment groups on acute pain intensity, and a small but non-significant effect on headache frequency compared with baseline and post-treatment measures. Although good feasibility of both treatment conditions was proved, no condition was found superior in reducing headache symptoms. On the basis of these results, a following study26 investigated the efficacy of the specific techniques in a prospective, randomized design compared to an attention-placebo-parallel group (rhythm pedagogic programme). In contrast to the music therapy treatment, an unspecified treatment plan including musical activity was developed. The same therapists in the same standardized rooms administered both treatments to control for general and common effects of the setting. The music therapeutic treatment plan consisted of different interventions that might be classified as receptive (just hearing), active (patient makes music) or interactive (patient and therapist make music together) techniques. The control group treatment comprised rhythm pedagogic training exercises structured into three fields of experience (sensory, motor and cognition). A total of 71 patients between the ages of 12 and 17 years, with one or multiple diagnoses according to the International Classification of Headache Disorders (ICHD-II) criteria of the International Headache Society (2004), having migraine without aura (ICHD-II 1.1), migraine with aura (ICHD-II 1.2), chronic migraine (ICHD-II 1.5.1), frequent episodic TTH (ICHD-II 2.2) or chronic TTH (ICHD-II 2.3) were included. The participants had to report at least an average frequency of 5 days of headache per month. Exclusion criteria were a current psychiatric diagnosis, any type of secondary or other primary headache and an ongoing psychotherapeutic treatment. The primary efficacy variable was the relative reduction of headache frequency per month (assessed through headache diaries) from the 8-week baseline period to the 8-week post-treatment period and the 8-week follow-up period 6 months after the end of the treatment. In both groups, headache frequency was found to be significantly reduced in the post-treatment assessment and remained so from post-treatment level (no significant deteriorations or improvements) to the follow-up assessment. There was no significant difference in headache intensity, headache disturbance and headache duration. Neither treatment group was found superior to the other.

Although music therapy is superior compared to a waiting-list condition26 and a medication-placebo control group25, it is not superior to a face-to-face attention placebo (bona fide treatment) in the treatment of patients with primary headache.

Conclusion

Although effective in reducing pain frequency, unspecified effects of expectancy, therapeutic relation, setting and “treatment as usual” (headache diary, headache education and so on) seem to account for the majority of therapeutic outcome, whereas specific effects relating to the music therapeutic techniques applied cannot be identified and need to be investigated.

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** Abbreviations list**
ICHDI, International Classification of Headache Disorders; TTH, tension-type headache.

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**References**

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