



Randomized Controlled Trial of the Acceptability, Feasibility, and Preliminary Effects of a Cognitive Behavioral Skills Building Intervention in Adolescents With Chronic Daily Headaches: A Pilot Study

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ABSTRACT

Introduction: The treatment challenge of adolescents with chronic daily headaches (CDHs) creates an urgent need for evidence-based interventions. Therefore the purpose of this pilot study was to evaluate the acceptability, feasibility, and preliminary effects of a brief cognitive behavioral skills building intervention with 36 adolescents, 13 to 17 years of age, who had CDHs and mild to moderate depressive symptoms.

Methods: Participants were randomly assigned either to the Creating Opportunities for Personal Empowerment–Headache Education Program (COPE-HEP) or to a headache education comparison group.

Results: Adolescents and parents found the COPE-HEP to be highly acceptable. Medium to large positive effects were demonstrated on the adolescents' depression in both groups and on anxiety and beliefs in the COPE-HEP group. COPE-HEP offered additional benefits of a larger decrease in adolescent anxiety over time and stronger beliefs in the teens' ability to manage their headaches.

Discussion: Adolescents with CDHs and elevated depressive/anxiety symptoms should be offered headache hygiene education plus cognitive-behavioral skills building interventions.

A full-scale trial to determine the more long-term benefits of COPE-HEP is now warranted. *J Pediatr Health Care.* (2015) 29, 5-16.

KEY WORDS

Adolescents, chronic daily headaches, behavioral interventions, psychological

As the prevalence of chronic daily headaches (CDHs) in adolescents increases, so does the treatment challenge for health care providers. According to recent reports, approximately 3.5% of adolescents in the United States have CDHs (Seshia, 2012). CDHs are defined as headaches occurring for 15 or more consecutive days per month for at least 3 or more consecutive months (Silberstein & Lipton, 1996). Management of CDHs is a challenge because they cause significant morbidity if not treated effectively and in a timely manner (Galli et al., 2004; Spittler, 2008). CDHs have an adverse impact on the adolescent's daily functioning (Hershey, Gladstein, & Winner, 2007), emotional/mental health (Wang, Fuh, Lu, & Juang, 2006), work and academic performance (Tenhunen & Elander, 2005; Wang et al., 2006), and overall functional performance (Gilman, Palermo, Kabbouche, Hershey, & Powers, 2007). Current clinical management is based largely on interventions focusing on adults, findings from childhood episodic studies, and expert opinion (Mack, 2010), with many interventions focusing on pharmacologic treatment modalities studied in adults (Schottenfeld, 2012). For example, in 2009 approximately 5.6 million prescriptions were written for opioids in children and adolescents aged 5 to 19 years who had chronic pain (Schottenfeld, 2012). Although approaches borrowed from adults have demonstrated some efficacy in adolescents, CDHs in many adolescents are oftentimes refractory to typical treatment (Hershey et al., 2007). These adolescents may experience increased pain, stress, comorbid symptoms, and overall disability, which may result in ineffective coping behaviors.

During the past decade, extensive research has examined prevalence and risk factors among adolescents who have CDHs (Dooley, Gordon, & Wood, 2005; Mazzone, Vitiello, Incorpora, & Mazzone, 2006; Pakalnis, Butz, Splaingard, Kring, & Fong, 2007; Palermo, Putnam, Armstrong, & Daily, 2007; Scher, Midgett, & Lipton, 2008; Seshia, 2012; Wang, Juang, Fuh, & Lu, 2007; Wang, Fuh, Lu, & Juang, 2007). In addition, many studies have examined chronic or recurrent headaches in children and adolescents, using different criteria for CDHs than that described by Silberstein and Lipton (1996, 2001). A few studies have found a substantial comorbidity of mental health problems in adolescents affected by CDHs (Pearlman, 2007; Singh, Shukla, Trivedi, & Singh, 2013; Wang et al., 2007a, 2007b). The chronicity of CDHs increases

in the presence of psychiatric comorbidities such as anxiety and depressive symptoms (Schuster, 2007), which makes treating these headaches more difficult (Gladstein & Mack, 2005). Inadequately treating adolescents with CDHs and comorbid depression and anxiety increases their risk for significant impairment, morbidity, and mortality (Rosenbaum & Covino, 2005).

Adolescence is a period of rapid physical and emotional development (Eccleston, Wastell, Crombez, & Jordan, 2008; Erikson, 1968). Illness threatens the adolescent's autonomy, which is a major developmental milestone, and can result in poor coping behaviors, which may result in emotional and social withdrawal (Eccleston et al., 2008). Low autonomy may have an impact on the adolescents' perception of their ability to manage their headaches (Palermo et al., 2007). Developmentally appropriate mastery and control of tasks are key antecedents for effective coping in this age group. To better help adolescents manage and cope with their headaches, treatment decisions need to be based on evidence-based adolescent-focused interventions that have considered the developmental level of the adolescents and the efficacy or receipt of the intervention in this population. Little has been written in the literature about theory-based, developmentally appropriate interventions to support the cognitive and behavioral management of CDHs in adolescents with mild to moderate depressive symptoms. Therefore, to study the preliminary effects of a brief cognitive behavioral skills building (CBSB) intervention in adolescents with CDHs and mild to moderate depressive symptoms, this study adapted the Creating Opportunities for Personal Empowerment (COPE) intervention (Melnyk et al., 2009), which focuses on improving the mental health of adolescents, combined with a headache education program (HEP) as the interventions for the study. This study is a first step in bridging this knowledge gap in the science of intervention research.

THEORETICAL FRAMEWORK

Cognitive theory provided the underpinnings for the development of the COPE-HEP program tested in this study (Beck, 1964, 1976). The content of cognitive theory is that how one thinks affects how he or she feels and behaves (Beck, Rush, Shaw, & Emery, 1979). Comorbid psychiatric symptoms such as anxiety and depression can be found in adolescents with CDHs. The COPE program has demonstrated efficacy in adolescents with mild to more severe depressive and anxiety symptoms (Lusk & Melnyk, 2011; Melnyk et al., 2013). The content of COPE includes how to (a) turn negative thoughts into positive thoughts, (b) more effectively communicate with others, (c) cue recognition, (d) set goals, (e) improve and manage stress, and (f) improve problem solving. The COPE-HEP integrated concepts of COPE and healthy headache lifestyle

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