

Customized CBT via internet for adolescents with pain and emotional distress: A pilot study



Ida K. Flink *, Christina Sfyrikou, Bob Persson

Center for Health and Medical Psychology (CHAMP), Institution of Law, Psychology, and Social Work, Örebro University, Örebro, Sweden

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ABSTRACT

The aim of this pilot study was to explore the effects of an early and customized CBT intervention, mainly delivered via internet, for adolescents with coexisting recurrent pain and emotional distress (low mood, worry, and/or distress). The intervention was based on a transdiagnostic approach, to concurrently target pain and emotional distress. A single case experimental design (SCED) was employed with six participants, 17–21 years old, who were recruited via school health care professionals at the student health care team at an upper secondary school in a small town in Sweden. The intervention consisted of 5–9 modules of CBT, delivered via internet in combination with personal contacts and face to face sessions. The content and length of the program was customized depending on needs. The effects of the program were evaluated based on self-report inventories, which the participants filled out before and after the intervention and at a six month follow-up. They did also fill out a diary where they rated symptoms on a daily basis. The results were promising, at least when considering changes during the intervention as well as pre- and posttest ratings. However, the results were more modest when calculating the reliable change index (RCI), and most of the treatment effects were not sustained at the follow-up assessment, which raises questions about the durability of the effects. Taken together, this study indicates that this type of program is promising as an early intervention for adolescents with pain and concurrent emotional distress, although the outcomes need to be explored further, especially in terms of long-term effects.

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1. Introduction

Recurrent pain is a common complaint in youth, affecting up to 50% of Swedish adolescents (Fichtel and Larsson, 2002), and among half of these suffer from functional impairments such as poor sleep (Haraldstad et al., 2011) and school absence (Kortterink et al., 2015). Headache, abdominal pain, and muscle pain are frequently reported, and about 40% of pain sufferers convey several pain locations (Larsson and Sund, 2007). Adolescents with frequent pains report higher levels of disability as well as anxiety and depressive symptoms (Fichtel and Larsson, 2002; Hoftun et al., 2012). They are also at risk of developing future emotional and behavioral problems, such as reduced leisure time activities and somatic complaints other than pain (Larsson and Sund, 2007). Suffering from frequent pain in adolescence is thus closely linked to emotional distress such as anxiety and depressive symptoms both concurrently and in the future, and it is important to address coexisting pain and emotional problems early on.

Cognitive behavioral therapy (CBT) for adolescents with chronic pain has shown significant effects in reducing pain intensity and

improving function (for reviews, see Fisher et al., 2014; Eccleston et al., 2013; Palermo et al., 2010). Although internet-based CBT (I-CBT) for pain mainly has been tested out on adults, there is also evidence that it may be beneficial for adolescents with recurrent pain (e.g., Palermo et al., 2009, 2016; Trautmann and Kröner-Herwig, 2010; Hicks et al., 2006; for a review, see Bender et al., 2011). I-CBT may particularly fit this age group, considering that adolescents are often used to modern technology, and the treatment is easily accessible. I-CBT may be extra effective if applied early on, for preventing future disability. Early interventions have the advantage of targeting problems before they get too severe, and have shown to be effective for reducing anxiety and depressive symptoms in youth (see e.g. Mrazek and Haggerty, 1994; Mychailyszyn et al., 2012). To our knowledge, I-CBT has not been used as an early intervention for adolescents with coexisting pain and emotional distress.

One explanation of the high levels of comorbidity between pain and emotional distress is that they share essential maintaining processes (Linton, 2013). Based on the *transdiagnostic perspective*, treatments should target shared processes to achieve improvements in co-morbid problems such as pain and depressive symptoms. One core transdiagnostic process is avoidance; both overt, such as avoidance of social and physical activities, and covert, such as avoidance of negative thoughts and feelings (Barlow et al., 2010). To our knowledge, only

* Corresponding author at: Institution of Law, Psychology, and Social Work, 70182 Örebro, Sweden.

E-mail address: ida.flink@oru.se (I.K. Flink).

one earlier study, which was a case report of two adolescents, has used a transdiagnostic approach to target pain and concurrent anxiety and depression in this age group (Allen et al., 2012). In the current study, we developed an intervention where the main content focused on transdiagnostic processes such as avoidance, to simultaneously target coexisting pain and emotional distress. Additional modules targeting specific problem areas were added to optimize the treatment and promote engagement. Similar approaches have been applied to younger children and adolescents, with encouraging results, both individually (e.g. Warner et al., 2011), and in group format (Logan and Simons, 2010). However, an entirely new aspect in our study was to deliver a transdiagnostic intervention via internet, a delivery mode which particularly may fit this specific age group.

Promoting engagement is extra important in adolescents, since there is a heightened risk for drop-outs (de Haan et al., 2013). Customizing the treatment content to fit the needs of the individual is one way of promoting engagement. In comparison to other internet-based interventions for pain in this age group, the customization of content and length of the intervention is a new feature in our study. Keeping personal contact through e-mails, phone calls or sms is another way of engaging youth. In the current project, we developed a unique intervention which was specifically adapted to suit adolescents, based on modern technology in combination with personal contacts. The main content focused on transdiagnostic processes, and additional components targeting specific problem areas were added depending on needs of the adolescent. As the participants partly had different emotional symptoms (e.g. with or without anxiety, depressive symptoms), the program was customized based on their problem description. The purpose of this pilot study was to explore the effects of an early and customized school-based CBT intervention, mainly delivered via internet, for adolescents with coexisting recurrent pain and emotional distress.

2. Method

2.1. Design

A single case experimental design (SCED) was employed with six participants. SCED is recommended when new treatments are developed and evaluated (Kazdin, 2014). SCED provides an intensive study of the individual, which includes systematic observation, manipulation of variables, repeated measurement before and during the intervention, and mainly visual data analysis. One advantage with SCED is that it gives detailed information about how the intervention works for each participant.

As shown in Fig. 1, the participants started to fill out daily reports before the intervention started (i.e. baseline) and continued throughout the intervention. The intervention was initiated at different time points for each participant. In this study the participants were randomized into two different baselines: 11 and 14 days. Validated self-report questionnaires were completed weekly during the intervention as well as at pretest, posttest and at a six months follow-up. The study was approved by the Regional Ethical Review Board in Uppsala (Dnr 2013/516).

2.2. Recruitment

The participants were recruited via school health care professionals (two social workers and two nurses) at the student health care team

at an upper secondary school in a small town in Sweden. The inclusion criteria were (1) adolescents enrolled in upper secondary school at a national program, (2) recurrent problems with pain (musculoskeletal pain, stomach pain or headache) in combination with self-reported problems with low mood, worry and/or distress, and (3) willingness to participate in the study. The exclusion criteria were (1) severe medical conditions (based on assessments by nurse or physician), (2) severe psychiatric conditions, e.g. eating disorder, psychosis (based on screening interview with psychologist), that required psychiatric care. Seven adolescents fulfilled the inclusion criteria and were included in the study. One of the participants dropped out during the treatment. Fig. 2 presents the recruitment process and reasons for exclusion and drop-out.

2.3. Participants

Six adolescents, 17–21 years old, participated in the study and completed the intervention. Table 1 presents an overview of the participants. None of the participants were on medication or had an ongoing contact with specialized health care services.

2.4. Procedure

The school health care personnel informed potential participants about the study and provided written information about the project at ordinary health care controls or when the adolescents applied for help at the school health care center. Adolescents who were interested in participating were invited to a screening interview with a psychologist. At the interview, the adolescents were informed about the purpose of the study, the content of the intervention and the assessments, and inclusion- and exclusion criteria were verbally assessed. Informed written consents were obtained. Electronic access to the web-platform was ensured with an electronic password that was sent to the participants' personal mobile phone. Five psychologists from the research team conducted the intervention. Participants were randomly assigned to therapists. The intervention as well as the pretest and posttest were administered through a web platform. Daily ratings and weekly questionnaires were coded and sent out to the participants via ordinary mail, and were returned on a weekly basis in pre-paid envelopes. The participants received a voucher à 10 Euro for each weekly assessment they returned. After completing the intervention, an independent person interviewed the participants individually following a semi structured protocol in order to evaluate the overall impression of the intervention.

2.5. Intervention

The intervention consisted of 5–9 modules of CBT, delivered via internet in combination with personal contacts and two obligatory face to face sessions: one at the beginning (Module 1) and one at the end (Module 9). The content of the program was customized depending on the needs of the adolescent, and included five obligatory modules (Module 1–4 and Module 9) and four optional modules (Module 5–8). The optional modules were recommended to participants based on daily ratings of symptoms after the initial four obligatory modules. If the adolescent scored above 5 on one or more of the symptoms, the modules targeting these symptoms were recommended. The order of

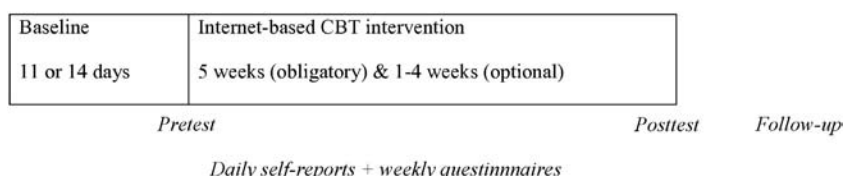


Fig. 1. Basic design of the study.

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