

Internet-Based Cognitive Behavioral Therapy for Children and Adolescents With Dental or Injection Phobia: A Randomized Controlled Trial

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Abstract

Background: Dental and injection phobia (DP/IP) in children and adolescents is common and considered one of the biggest obstacles to successful treatment in pediatric dentistry. Cognitive behavioral therapy (CBT) is an evidence-based treatment for anxiety and phobias. Because availability of CBT in dentistry is low, internet-based CBT (ICBT) was developed. Open trials have shown that ICBT is a promising intervention, but randomized trials are lacking.

Objective: This study, in a randomized controlled trial, tested if therapist-guided ICBT supported by a parent could reduce fear, allowing children and adolescents with DP/IP to receive dental treatment.

Methods: We enrolled 33 participants, average age 11.2 years (SD 1.9), whom a clinical psychologist had diagnosed with DP, IP, or both. After inclusion, participants were randomized to either ICBT (n=17) or a control group of children on a waiting list (n=16). ICBT is based on exposure therapy and comprises a 12-week, at-home, program combined with visits to a regular dental clinic. Participants corresponded weekly with their therapist after completing each module, and one parent was designated as a coach to support the child in the assignments during treatment. All participants completed measurements of the primary and secondary outcome variables before treatment start, and after 12 weeks (at treatment completion). The measurements included a structured diagnostic interview by a clinical psychologist. Our primary outcome measures were the Picture-Guided Behavioral Avoidance Test (PG-BAT), which assesses ability to approach 17 dental clinical procedures, and a positive clinical diagnosis. Secondary outcome measures included self-report questionnaires that measured self-efficacy and levels of dental and injection anxiety. The child and the parent completed the questionnaires.

Results: All participants in the ICBT group completed the program. After treatment, 7/17 (41%) in the ICBT group no longer met the diagnostic criteria for DP or IP whereas all participants in the control group did ($P=.004$). Repeated measures ANOVAs showed that ICBT led to larger improvements on the child- and the parent-rated PG-BAT compared to the control group; between-group effect sizes for Cohen d were 1.6 ($P?.001$) for the child-rated PG-BAT and 1.0 ($P<.01$) for the parent-rated PG-BAT. Further, reductions in dental and injection anxiety and improvements in self-efficacy were significantly larger among children in the ICBT group compared to the controls. No participant reported any adverse events.

Conclusions: ICBT seems to be an effective treatment for dental and injection phobia in children and adolescents. It reduced fear and anxiety and enabled participants to willingly receive dental treatment. ICBT should be seriously considered in clinical practice to increase accessibility; the therapy may reduce the need for sedation and restraint and lead to better dental health in children and adolescents. More research, especially on methods for effective dissemination and comparisons with traditional CBT, is needed. Clinical Trial: NCT02588079

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Original Manuscript

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improvements on the child- and the parent-rated PG-BAT compared to the control group; between-group effect sizes for Cohen d were 1.6 ($P \leq .001$) for the child-rated PG-BAT and 1.0 ($P < .01$) for the parent-rated PG-BAT. Further, reductions in dental and injection anxiety and improvements in self-efficacy were significantly larger among children in the ICBT group compared to the controls. No participant reported any adverse events.

Conclusions: ICBT seems to be an effective treatment for dental and injection phobia in children and adolescents. It reduced fear and anxiety and enabled participants to willingly receive dental treatment. ICBT should be seriously considered in clinical practice to increase accessibility; the therapy may reduce the need for sedation and restraint and lead to better dental health in children and adolescents. More research, especially on methods for effective dissemination and comparisons with traditional CBT, is needed.

Trial Registration: NCT02588079

Keywords: adolescents; CBT; children; dental anxiety; dental fear; internet; specific phobia

Introduction

Dental fear and anxiety (DFA) refers to strong negative emotions associated with dental treatment among children and adolescents [1]. In children and adolescents, the prevalence of DFA is 24%, making it a common clinical problem in pediatric dentistry [2]. Dental phobia (DP) and injection phobia (IP) are specific phobias classified as psychiatric disorders in The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [3]. A specific phobia is defined as a marked and persistent fear that is excessive or unreasonable, in this case concerning the dentist, dental care in general, or a specific part of the dental treatment. The phobic object or situation is either avoided or endured with intense anxiety or distress. The fear is also persistent and typically lasts for at least 6 months, interfering significantly with the person's normal functioning [3]. In dental care, if the phobia only pertains to receiving an injection but not any other situation or object, it should be viewed as an injection phobia (IP), if the fear of injections is general (ie. the fear is triggered for all types of injections), and intra-oral injection phobia (I-OIP) which is a subtype of IP where the fear is only pertaining to injections in the mouth. Both DP and IP are classified as subtypes of Blood-Injury-Injection (BII) phobia, that is, specific phobia related to seeing blood, injections, injuries, disability, or exposure to these or similar medical procedures [4]. It has been showed that 20% of children fulfill diagnostic criteria for BII phobia at least once between the ages 4-14 [5]. DFA and DP/IP often lead to avoidance of dental care, which can cause decreased dental and general health [6].

Systematic reviews [1,7] have observed that traditional methods of treating pediatric patients with DFA or DP/IP (ie, tell-show-do, restraint of some sort, sedation with midazolam or nitrous oxide, and general anesthesia) have low scientific evidence for treating the fear itself. These methods may be effective for preventing the development of DFA or DP/IP before the first dental treatment or temporarily enabling dental treatment in groups of patients with anxiety and fear. However, they are ineffective for patients with severe DFA or with previous negative treatment experiences such as

those with DP/IP. One reason may be because they do not incorporate exposure-based cognitive behavioral therapy (CBT), which is arguably the gold standard method for treating specific phobia. Another is that they were not developed using a multidisciplinary approach that combines findings from the fields of both dental care and psychological science on reduction of anxiety and fear [1].

Stronger forms of DFA and DP/IP are primarily learned through adverse events (ie, painful treatment procedures) in dental or general health care contexts, which results in fear being associated with dental care or specific objects or procedures, a process called respondent or classic conditioning [8,9]. CBT treatments are widely recognized to be the most effective treatment for specific phobias and anxieties, but they are rarely implemented in dental practice [10]. The focus of CBT in the pediatric dental care setting is to reduce patients' anxiety so that they can willingly receive treatment without any need of sedation or restraint. CBT which is normally given face-to-face by a trained psychotherapist has been shown to be effective for both adults [11,12] and children and adolescents [13,14,15,16] with DFA or DP/IP. However, accessibility to and use of CBT is generally low in dentistry. Common barriers include a lack of trained CBT therapists, high costs for the family if the child is treated in private psychotherapeutic services, and time constraints (ie, it might be difficult for parents to take time off from work for an extended time for weekly visits to the psychologist) [17]. Also, there might exist dentistry specific barriers such as a lack of knowledge about CBT methods and problems integrating workflows and new personnel (ie, CBT therapists) into the clinic.

Internet-Based CBT

Internet-based CBT (ICBT) was developed to make CBT more accessible. ICBT is delivered over the internet through text, video clips, animations, and audio files instead of via a therapist in face-to-face sessions. ICBT uses the same mechanisms and principles as face-to-face CBT, and they have been shown to have comparable effect sizes [18]. Previous research has shown that ICBT, where a

therapist guides the patient, is associated with larger effects than unguided treatments [19]. Therapist-guided ICBT for fears and anxieties consists of a base of online material that conveys information and concrete exercises to reduce the patient's fears, and the patient receives support from a psychologist through an online chat or email function. ICBT has been found to be effective for children with specific phobias [20, 21] and children and adolescents with DP [22]. These studies have used a parent as a coach guiding the child through the treatments.

The aim of this study was to test, in a randomized controlled trial (RCT), if ICBT can reduce fear and increase willingness to receive dental treatment in children and adolescents with DP/IP.

METHODS

Recruitment

Participants were recruited through dental clinics and social media advertisements that referred interested families to an online website of the Department of Dental Medicine at Karolinska Institutet. The study website contained brief information about the study and the targeted population. Interested parents (caregivers) applied directly through the website and were then assigned a login for online screening. We informed dental clinics throughout Sweden and encouraged them to advertise for participants in the waiting rooms. We also asked dentists, especially specialists in pediatric dentistry, to recommend patients with DFA that was so severe it interfered with dental treatment to apply to the study. In Sweden, both general and specialist pediatric dentistry are publicly funded and offered free-of-charge to all children. However, waiting times and availability of specialist care differ between regions. Participants were recruited from October 2015 to December 2019. We planned to recruit 50 participants. However due to slower-than-expected recruitment pace we extended the original planned recruitment time and ended the recruitment with 33 included participants in the study. Of the 58 interested applicants that provided informed consent and filled in the background information 26 (45%) were currently under treatment or in the waiting list of a

specialist pediatric dentist. Further, 44 (76%) lived in the Stockholm region whereas the rest were spread out throughout other regions of Sweden. Finally, 38 (66%) were advised directly by their dentist to apply to the study, 1 (2%) saw an advertisement on a notice board at their dentist, 6 (10%) found the study by searching on the internet or through social media advertisements, 2 (3%) heard of it through a friend or relative and 11 (19%) were patients in general dental care who when consulting a specialist were advised to apply to the study.

Screening

The first step in online screening provided information on the study and details about informed consent from the caregivers (henceforth referred to as the parent or parents). After providing informed consent, the parent (parents had to designate one of them to fill out the questionnaires and do the telephone interview) and the child provided basic background information on a questionnaire and then filled in four standardized questionnaires: the Picture-Guided Behavioral Avoidance Test (PG-BAT) [16], the Children's Fear Survey Schedule - Dental Subscale (CFSS-DS) [23], the Children's Negative Cognitions in Dentistry (CNCD) scale [22], and the Injection Phobia Scale for Children (IPSC) [24].

After assessment of the first screening step, we asked the parents of eligible participants to fill out the Development and Well-Being Assessment (DAWBA) and gave them new login credentials for accessing the survey on a different platform.

A clinical psychologist then interviewed the parent over the telephone. The semi-structured diagnostic interview used the specific phobia section of the Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime (K-SADS-PL) [25] to establish whether the child had a specific phobia diagnosis for DP or IP. The interviewer also followed up the results of the DAWBA with the parent when they indicated that the child might meet potential exclusion criteria.

Inclusion and Exclusion Criteria

Eligible participants who met the inclusion criteria [Textbox 1] were asked to join the study; all agreed to participate.

Textbox 1. Inclusion criteria.

1. Child age is between 8 and 15 years.
2. Child *and* parents sign informed-consent forms.
3. A psychologist establishes a diagnosis of dental phobia or injection phobia according to the Diagnostic and Statistical Manual of Mental Disorders (4th Edition) from the results of the internet parent version of DAWBA in the initial screening and of the K-SADS-PL in the semi-structured diagnostic interview.
4. Swedish language skills of the child *and* parents are sufficient to manage treatment and the questionnaires.
5. Access to a computer and the internet is readily available.
6. Child *and* parents have sufficient time and motivation to work with ICBT 3 hours each week for 12 weeks.
7. Parents agree to book at least three visits at the dental clinic during the 12 weeks of treatment.
8. If the child is diagnosed with injection phobia, the parents agree to exposure training for intraoral injection at the dental clinic, even if the child does not need dental treatment.

Participants who met any of the exclusion criteria [Textbox 2] were excluded.

Textbox 2. Exclusion criteria.

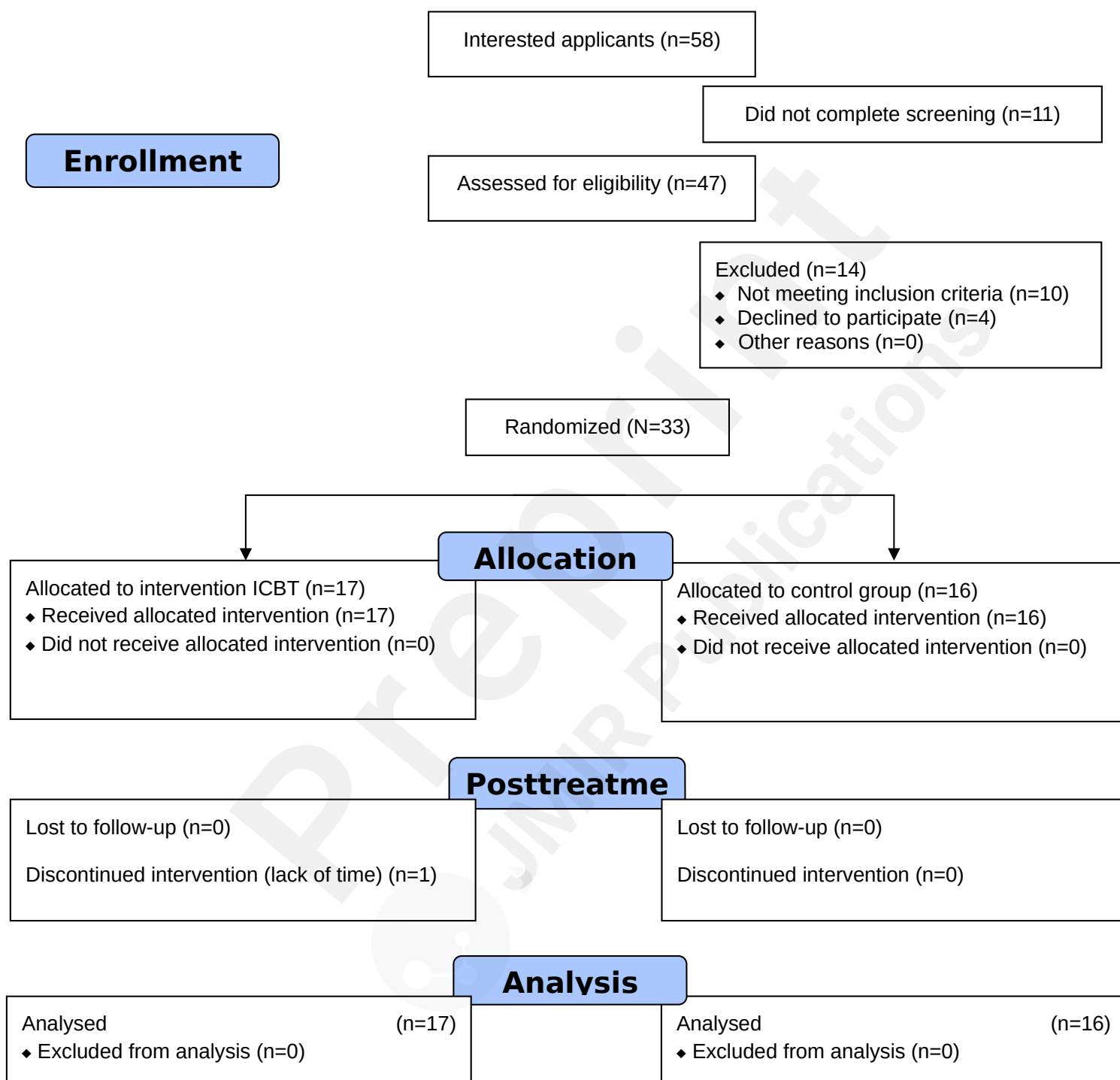
1. Full points on the child and parent versions of the picture-guided behavioral approach test. The maximum score of 17 means that the child and the parent assess that the child is already able to manage the most challenging dental situations.
9. A score of 31 or less on the child and parent versions of the Children's Fear Survey Schedule - Dental Subscale (CFSS-DS) and no diagnosis of injection phobia by the psychologist during screening.
10. A previously established diagnosis of a neurodevelopmental disorder or a likely diagnosis of a neurodevelopmental disorder according to the results of DAWBA or to the psychologist during screening.
11. Other psychiatric disorders such as severe depression, eating disorders, or self-harm behavior that require treatment first before dental-related specific phobia.
12. Current or planned psychiatric/psychological examination.
13. Current or planned psychological treatment.
14. Stressful life experiences in the last 12 months, such as parental divorce or somatic illness, that the parent or psychologist consider an obstacle in treatment.
15. Cognitive behavioral treatment for DFA or DP/IP in the last 3 years.

Randomization and Outcome Measures

The study began by establishing a baseline for the outcome measures. These were the PG-BAT and the CFSS-DS which the child and parent rated separately. The CNCD scale, the IPSC, and the self-efficacy questionnaire for phobic situations (SEQ-SP) [26] were rated by the child only. And finally, the parental self-efficacy questionnaire for dental anxiety (P-SEQ-DA) [22] was rated by the parent. One person, uninvolved with the study and blinded to the identities of the participants, then randomized the participants consecutively in a 1:1 ratio to active treatment or to a waiting list (the control group) using the list randomization tool at www.random.org and the participants' study ID number. New participants were continuously assigned using a randomized block design; block size varied, depending on the number of participants available at the time of randomization. In cases of one participant or an uneven number of participants, a "dummy participant" was added to the block to maintain a 1:1 ratio for randomization. A follow-up at 12 weeks, upon treatment completion, included all outcome measures in the baseline measurement in addition to a semi-structured

diagnostic interview with a psychologist over the telephone using the specific phobia section of the K-SADS-PL. Further, the follow-up included a questionnaire concerning qualitative aspects of the child's current dental anxiety and the ICBT treatment; response options included free text, multiple choice, and Visual Analogue Scales (VAS). The questionnaires also contained clear questions about adverse events or unwanted treatment effects, which the psychologists covered in their interview. After the follow-up, the controls were offered the same treatment that the ICBT group had received. Figure 1 is a flowchart of the participants in this study.

Figure 1. Flowchart of participant recruitment and allocation to the two study groups: internet-based cognitive behavioral therapy (ICBT) and the control group.



Primary Outcome Measures

This study had two primary outcome measures. The first was the specific phobia section of the K-SADS-PL [25], which we used to diagnose DP and IP among the participants. A clinical psychologist included this in a semi-structured interview over the telephone with the parent. The K-SADS-PL has been shown to be a reliable and valid instrument for assessing psychiatric diagnoses.

The second primary outcome measure was the PG-BAT [17, 22], which the child and parent rated separately. The recommended outcome measure of CBT treatment of specific phobias is the BAT [9, 13]. The PG-BAT is similar and was used in a previous study of ICBT [22] for dental anxiety. The test has been shown to have good psychometric properties and measures the number of dental procedures (n=17; response options: yes=1, no=0) [Textbox 3] that the participants or parents felt that the participants could manage on their own. Pictures of 17 dental-clinical procedures are organized according to increasing ability to provoke anxiety. Each image includes a written description of the situation and procedure. Scores range from 0 (not even being able to enter the dentist's room) to 17 (able to manage all treatment steps).

Textbox 3. The dental procedures in the Picture-Guided Behavioral Avoidance Test (PG-BAT).

1. Enter the treatment room.
2. Sit in the treatment chair with a paper bib around the neck.
3. Sit in the treatment chair while the chair is lowered.
4. Lie in the dental chair with the lamp turned on and the dental tools close by on a tray.
5. Open the mouth and let the dentist look into the mouth.
6. Let the dentist use a small saliva ejector in the mouth.
7. Let the dentist blow air and water in the mouth.
8. Undergo a clinical exam with a dental mirror.
9. Undergo a clinical exam with a mirror and a dental probe.
10. Let the dentist take an x-ray in the back of the mouth.
11. Receive topical anesthesia.
12. Receive an injection of a local anesthetic.
13. Let the dentist use a large saliva ejector in the mouth.
14. Let the dentist attach composite filling to the surface of a tooth.
15. Let the dentist drill with a high-speed drill.
16. Let the dentist polish a filling with a low-speed drill.
17. Let the dentist extract a tooth.

Secondary Outcome Measures

The CFSS-DS [22] measures DFA and comprises 15 items rated on a 5-point scale from no fear (1) to high fear (5). The items describe situations in dental and medical care and were rated separately by the child and the parent. The Swedish version of the CFSS-DS has been shown to have good psychometric properties [23].

The children rated the 5-item CNCD scale [22] on 10-point VAS. The scale endpoints were 0=no negative thoughts at all, and 1=some negative thoughts; happy and sad figures illustrated these concepts (10, 14). The questions regarded the presence and strength of 5 negative thoughts that are common in dentistry: uncontrollability, distrust of dentists, unpredictability, dangerousness, and pain related to dentistry.

The IPSC [24] was rated by the child and consists of 18 items rated on a 5-point scale ranging from no fear (1) to high fear (5). The questions regard the fear of different situations and procedures related to injections. The test has been shown to have good psychometric properties [24].

Participants rated the Swedish translation of the 14-item SEQ-SP [26] on 5-point scales with the endpoints 1=low self-efficacy and 5=high self-efficacy.

Parents rated a Swedish version of the 12-item P-SEQ-DA [22] on 10-point scales with the endpoints 0=no parental self-efficacy and 10=very high parental self-efficacy. The instrument was evaluated in our open trial study on ICBT for dental anxiety in children and adolescents [22].

The ICBT Intervention Platform

The form of ICBT in this study was based on a previously published manual [17] that had been used in a pilot study [22]. The central component of the treatment was exposure through video and audio recordings, a toolkit for use at home, and in vivo exposures at the dental clinic. Other components of the treatment were psychoeducation, behavioral analyses, controlled breathing, and parental education [Textbox 4]. Parents were asked to decide among themselves who would be responsible for coaching and supporting the children and adolescents, thereby becoming the designated coach throughout the treatment. The second treatment module targeted the coach with information on how to support, motivate, and assist the children and adolescents with assignments.

The intervention and all data collection occurred on a secure online platform hosted by the Internetpsykiatri (internet psychiatry) unit run by Stockholm Health Care Services, Region Stockholm, Sweden. The coach and children and adolescents shared the same login. Each module indicated who was responsible for completing the various measurements, treatment modules, assignments, and so on. One of the assignments for the coach, for example, was to call the participant's local dental clinic and book at least three visits for in-vivo exposures, which the dental staff would perform. Participants downloaded information and instructions on exposure from the

platform and mailed printed or digital copies of these to the clinic. During week 2, the participants received a toolkit with dental instruments and a VAS that the children and adolescents and coach could use for the exposure assignments at home [**Supplement 1**].

The ICBT intervention comprised 12 online treatment modules that were made accessible to the participants, one module per week. Each participant was assigned a psychologist who supported them throughout treatment. Three psychologists were involved in this study; all had a 5-year degree in clinical psychology as a minimum. Additionally, all three had face-to-face clinical dental experience in CBT with children and adolescents who had DP/IP. All modules had some kind of text; most modules also had pictures, animations, and videos and audio of various dental procedures for exposure purposes. See [**Supplement 2,3,4**] for example screenshots of the interface and treatment modules.

Each week, the children and adolescents and coach completed a new module that concluded with an assignment containing knowledge questions about the module and practical exercises. Each week, participants sent their responses to the questions and a log of their assignments to their online psychologist, who would send feedback and grant access to the next module within 2 days. Participants could also message their psychologist directly through their account on the platform and expect a reply, on average, within 2 working days. The psychologists would send reminders to inactive participants about continuing work with the modules via SMS and email. If participants were inactive for more than 10 days, the psychologist would try to reach them by telephone.

Twelve weeks after treatment had begun, and regardless of whether or not the participants had finished the treatment modules, all treatment modules were made available on the platform. The account of the children and adolescents and coach with its log-in credentials would remain active for the next 12 months; however, participants were no longer able to communicate with their psychologist.

Textbox 4. Outline of the 12 internet-based cognitive behavioral therapy (ICBT) modules (one module each week).

1. Introduction to CBT and the online treatment
2. (For the coach only) Psychoeducation, practical arrangements, home assignment, how to guide a child in order to elicit and reinforce behavioral change, reward strategies, enhancing the child's self-efficacy
3. Behavioral analyses, child psychoeducation and treatment rationale, goal setting
4. Constructing an exposure list and beginning exposure
5. Continued exposure (films, training package) and controlled breathing
6. Dentistry related communication training and preparation for the first dental visit
7. Evaluation of the dental visit and cognitive restructuring
8. Mid-term evaluation of ICBT and of exposure at the dentist, relaxation techniques
9. Pain and pain management education; fear, thoughts, and pain; focus shift and acceptance training
10. Problem solving and mindfulness training
11. Repetition, strategies for maintaining change and relapse prevention, letter to yourself
12. Relapse prevention plan, enhance your self-efficacy, diploma

Statistical Analysis

All statistical analyses were made using the IBM® Statistical Package for the Social Sciences (SPSS; v 27 for Apple Macintosh; IBM Corp Armonk, NY, USA). We accepted 5% type I error in all analyses. To compare the means between the two study conditions, we used *t* tests. Repeated measures ANOVA were conducted to evaluate possible differences in changes over the 12 weeks (baseline to follow-up) between the ICBT and the control groups. We estimated effect size using Cohen *d*, that is, the standardized mean difference [27]. Chi-square tests of independence were done to evaluate possible between-group differences in fulfilling diagnostic criteria. Before conducting our analyses, we checked data for normality. We expected the effects to be in line with our open trial study using the same procedures and treatment [22]. The power calculation was thus based on an estimated effect size of Cohen *d*=1.0 and showed that to obtain 80% power ($\alpha = .05$), 17 participants in each arm ($N=34$) were required. We used an intention-to-treat design, that is,

participants were included in the analyses irrespective of the extent to which they had completed treatment.

Ethical considerations

Before the participants could fill in the screening and enter the study, informed consent was collected. Information about the study, and the informed consent was provided in Swedish and included a permission for secondary analysis of the data without additional consent. The informed consent was given by both caregivers separately if they were two. There was no compensation given to the participants, and like all dental care for children and adolescence in Sweden, they received the intervention for free. For added security the secure online platform where data was collected required a two-step authentication via SMS for logging in, both for participants and the study staff. When extracting data from the platform for analysis it was de-identified and an anonymous study ID was used as an identifier for each subject. The regional ethics review board in Stockholm approved the study (ID #: 2014/633-31/5).

Results

All participants had a diagnosis of DP or IP (or both) at baseline. Of the 33 children included in this study, 21 (64%) were female. The mean age of the study sample was 11.2 years (SD 1.9). During dental treatment, sedation or general anesthesia had been administered or restraint had been necessary for all but two participants (one in each group). Table 1 presents participant characteristics.

Table 1. Participant characteristics of the internet-based cognitive behavioral therapy (ICBT) and the control groups.

Variables	ICBT (n=17)	Controls (n=16)	Total (N=33)
Age (years), mean (SD)	11.3 (1.8)	11.1 (1.9)	11.2 (1.9)
Females, n (%)	10 (59)	11 (69)	21 (64)
Both parents born in Sweden, n (%)	15 (88)	14 (88)	29 (88)
Living with both parents, n (%)	16 (94)	12 (75)	28 (85)
<i>Duration (months), mean (SD):</i>			
Fear of the dentist	38 (30)	47 (50)	45 (41.5)
Fear of injections	60 (41)	72 (55)	69.8 (48.4)
<i>Diagnosis, n (%):</i>			
Dental phobia	14 (82)	14 (88)	28 (85)
Injection phobia	15 (88)	14 (88)	29 (88)
Dental <i>and</i> injection phobia	12 (71)	12 (75)	24 (73)
Another specific phobia ^a	5 (29)	5 (31)	10 (30)
<i>During dental treatment, n (%):</i>			
Sedation was administered	16 (94)	15 (94)	31 (94)
Restraint was necessary	10 (59)	8 (50)	18 (55)
General anesthesia was administered	4 (24)	2 (13)	6 (18)

^aDiagnosis of a specific phobia other than dental or injection phobia

Table 2 presents the baseline scores of the children and their parents in the two study groups. The measures are the self-report measures in the primary and secondary outcome measures. The *t* tests found no significant between-group differences in these. Chi-square tests of independence showed no significant between-group association in fulfilling the diagnostic criteria for DP, IP, or DP/IP.

Table 2. Baseline self-report scores of the children and their parents in the internet-based cognitive behavioral therapy (ICBT, n=17) and the control (n=16) groups.

Outcome Variables	ICBT		Controls		<i>P</i> value ^a
	Mean (SD)	95% CI	Mean (SD)	95% CI	

Child

Dental procedures managed ^b , n	11.1 (4.2)	9.0-13.3	11.7 (3.2)	10.0-13.4	.668
Dental fear and anxiety ^c	37.1 (10.5)	31.6-42.5	35.3 (12.3)	28.7-41.8	.653
Negative cognitions ^d	25.5 (13.0)	18.8-32.2	22.0 (11.6)	15.8-28.2	.425
Injection fear ^e	41.7 (10.5)	36.2-47.1	43.3 (12.1)	36.9-49.7	.675
Self-efficacy ^f	25.6 (6.6)	22.2-29.0	29.8 (7.3)	26.0-33.7	.089

Parent

Dental procedures managed ^b , n	10.6 (4.6)	8.2-13.0	11.2 (4.1)	9.0-13.4	.696
Dental fear and anxiety ^c	35.5 (9.5)	30.6-40.4	36.8 (9.7)	31.7-42.0	.690
Parental self-efficacy ^g	111.2 (15.2)	103.4-119.0	105.6 (18.3)	95.9-115.4	.344

^aP values are based on *t* test

^bThe picture-guided behavioral avoidance test (PG-BAT); score range: 0-17

^cThe Children's Fear and Survey Schedule – Dental Subscale (CFSS-DS); score range: 15-75

^dThe Children's Negative Cognitions in Dentistry (CNCD) scale; score range: 0-50

^eThe Injection Phobia Scale for Children (IPSC); score range: 18-90

^fThe Self-Efficacy Questionnaire for Phobic Situations (SEQ-SP); score range: 14-70

^gThe Parental Self-Efficacy Questionnaire for Dental Anxiety (P-SEQ-DA); score range: 0-120

Treatment Adherence and Dropout Frequency

All participants performed the 12-week follow-up; thus no data were missing. Of the 17 participants in the ICBT group, 1 participant chose not to continue the intervention after week 2 due to other priorities and lack of time; we categorized this participant as a dropout. The other 16 participants finished at least 5 modules and started the first steps of exposure training. Thirteen of the participants were considered treatment completers as they finished the most important steps of the treatment (module 8) and were conducting in-vivo exposure sessions at their local dental clinic by the time of the follow-up. The mean number of completed modules after 12 weeks was 8.4 (SD 3.4). Two participants in the control group chose not to enroll in ICBT after the study was concluded.

Primary Outcome Measures

In the ICBT group 7/17 persons (41%) compared with 0/16 (0%) in the control group no longer met the diagnostic criteria for DP, IP, or DP/IP at the posttreatment clinical interview. A chi-square test of

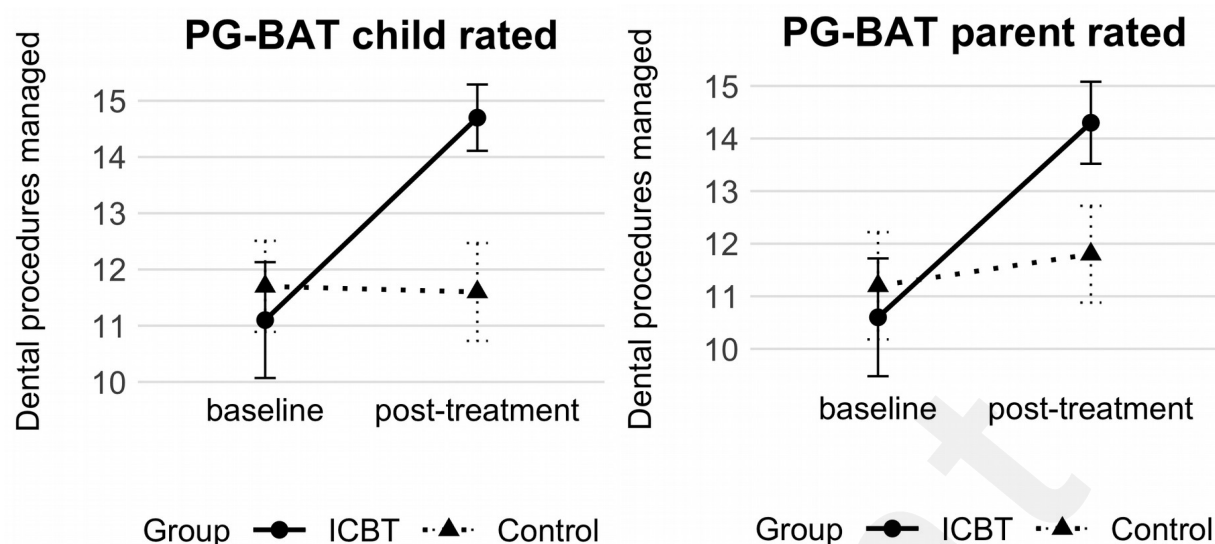
independence showed that the difference was significant ($X^2_1 = 8.4$; $P = .004$). 11/17 persons (65%) compared with 0/16 (0%) in the control group lost at least one of their earlier diagnoses of either DP or IP ($X^2 (1, N=33) = 15.5$, $P < .001$). **Table 3** presents the results of the intervention stratified by diagnosis.

Table 3. Participants fulfilling diagnoses of dental phobia or injection phobia at baseline and at the follow-up in the internet-based cognitive behavioral therapy (ICBT, $n=17$) and the control ($n=16$) groups.

	Treatment period				Chi-square (df)	P value
	ICBT group n (%)		Control group n (%)			
	before	after	before	after		
<i>Diagnosis</i>						
Dental phobia	14 (82)	7 (41)	14 (88)	14 (88)	9.4 (1)	.002
Injection phobia	15 (88)	10 (59)	14 (88)	14 (88)	5.6 (1)	.02

Further, children in the ICBT group who rated the PG-BAT noted being able to manage a significantly larger number of dental procedures at the follow-up (mean 3.6; SD 3.1) compared to children in the control group, who reported a decrease over the same time period (mean -0.1; SD 1.4; $P \leq .0001$; **Figure 2**). Parents in the ICBT group also noted that their children were able to manage a significantly larger number of dental procedures (mean 3.7; SD 3.7) compared to parents in the control group (mean 0.6; SD 2.5; $P = .009$; **Figure 2**). The between-group effect size (Cohen d) at the follow-up, calculated from the group-by-time interaction effects resulting from a repeated measures ANOVA analysis of the child-rated PG-BAT, was 1.6 (95% CI 0.8-2.3) and from the parent-rated PG-BAT, 1.0 (95% CI 0.3-1.7); this indicated large treatment effects in the primary outcome measuring willingness and capability to manage dental treatment.

Figure 2 and 3. Number of dental procedures managed according to the Picture-Guided Behavioral Avoidance Test (PG-BAT). Child and parent ratings at two time points (baseline and post-treatment) in the two study groups: the internet-based cognitive behavioral therapy (ICBT) group and the control group.



Secondary Outcome Measures

During the 12 weeks between baseline and follow-up, significantly larger improvements occurred in the ICBT group than among controls in all secondary outcome measures except in parental self-efficacy (**Table 4**) for mean changes and the group-by-time interaction effects calculated in the repeated measures ANOVA. **Supplement 5** presents a complete table of means and SD at follow-up for all outcome measurements stratified by allocation group. **Supplement 6** presents within-group effects for the ICBT group; no within-group effects were seen for the control group. Participants reported no adverse events or unintended effects during the intervention.

Table 4. Child- and parent-rated changes between baseline and follow-up in secondary outcomes and between-group effect sizes in the internet-based cognitive behavioral therapy (ICBT, n=17) and the control (n=16) groups.

	ICBT group		Control group		Repeated Measures ANOVA ^a		
	n	Mean (SD)	n	Mean (SD)	P value ^b	Cohen <i>d</i>	95% CI
<i>Child</i>							
Δ Dental fear and anxiety ^c	17	-11.7 (8.7)	16	2.6 (9.2)	<.001	-1.6	-2.4 to -0.8
Δ Negative cognitions ^d	15	-13.3 (9.7)	16	1.7 (13.1)	.001	-1.3	-2.1 to -0.5
Δ Injection fear ^e	16	-10.6 (10.0)	16	0.7 (13.4)	.011	-1.0	-1.7 to -0.2
Δ Self-efficacy ^f	16	18.3 (12.2)	16	-0.3 (5.8)	<.001	2.0	1.1 to 2.8
<i>Parent</i>							
Δ Dental fear and anxiety ^c	17	-10.88 (9.38)	16	0.9 (8.9)	.001	-1.3	-2.0 to -0.5
Δ Parental self-efficacy ^g	17	3.71 (13.68)	16	-3.8 (8.2)	.066	0.7	-0.1 to 1.4

^aGroup-by-time interaction effects

^bP values are based on Group-by-time interaction effects of Repeated Measures ANOVA

^cThe Children's Fear and Survey Schedule – Dental Subscale (CFSS-DS); score range: 15-75

^dThe Children's Negative Cognitions in Dentistry (CNCD) scale; score range: 0-50

^eThe Injection Phobia Scale for Children (IPSC); score range: 18-90

^fThe Self-Efficacy Questionnaire for Phobic Situations (SEQ-SP); score range: 14-70

^gThe Parental Self-Efficacy Questionnaire for Dental Anxiety (P-SEQ-DA); score range:0-120

Discussion

Principal Results

After treatment, 7/17 (41%) in the ICBT group no longer met diagnostic criteria for either dental or injection phobia whereas all participants in the control group did. Furthermore, an additional 4/17 (24%) children in the ICBT group no longer met diagnostic criteria for one of their two diagnoses at baseline, totaling 11/17 (65%) in the ICBT group in whom at least one diagnosis had remitted. Compared to the control group, participants in the ICBT group could also willingly receive significantly more treatment steps at the dentist and significantly decreased their fear, anxiety, and negative cognitions towards dentistry and injections after 12 weeks. As rated by both the child and parents, the effect size calculated from the primary outcome PG-BAT was large. Also, children in the ICBT group reported higher self-efficacy. To sum, this randomized controlled trial indicates that ICBT for children with dental and injection phobia is an effective treatment.

Comparison With Prior Work

This is the first RCT of ICBT for DP and IP in pediatric dentistry. Effect sizes are in line with earlier studies on in-person, exposure-based CBT methods in pediatric dentistry. Our research group previously conducted a non-randomized pilot using the same interventions as in this trial [22]. That study found within-group effect sizes between baseline and follow-up of 1.5 (95% CI 0.7-2.3) for the child-rated PG-BAT and 1.0 (95% CI 0.5-1.6) for the child-rated CFSS-DS; these are comparable to the within-group effect sizes in this study, which were 1.2 (95% CI 0.5-1.8) and 1.3 (95% CI 0.7-2.0) respectively. In the previous pilot study [22], ICBT participants were further improved at the 1-year follow-up, suggesting that the results of CBT for DP and IP are stable and can even increase over time.

A randomized controlled trial of face-to-face CBT for dental anxiety in children and adolescents found strong between-group effects of Cohen $d = 1.4$ after treatment and 1.9 at the 1-y follow-up for the main outcome of a clinician-administered BAT [15]. After treatment, 64% in the CBT group no longer met the diagnostic criteria of their initial diagnosis and at the 1-year follow-up, the number was 91%. That study used an active control group receiving care from specialist pediatric dentists, indicating that exposure-based CBT can yield improvements above and beyond those achieved with traditional care at specialist dental clinics for pediatric care. When calculated from the child-rated CFSS-DS, the within-group effect size of that study was 1.8 (95% CI 0.9-2.8) compared to a within-group effect size of 1.3 (95% CI 0.7-2.0) for the ICBT group in this study.

Lastly, a research group in Norway conducted a 5-session CBT series for children and adolescents diagnosed with intra-oral IP [16]. In that study, dentists specially trained in CBT carried out treatment, showing that exposure-based CBT can also be effectively implemented by dentists without the need of psychologists. During CBT treatment, 47/67 (70.1%) of the participants were able to tolerate an injection; at the 1-year follow-up, 34/49 (69.4%) were able to manage required intra-oral

injections by their regular dentist, according to dental records. Since no effect sizes or correlations were reported, we calculated Cohen d of the CFSS-DS from the pre- and posttreatment scores, 33.8 (SD 9.7) and 23.9 (SD 6.7) of the sample ($n=57$). The resulting effect size of 1.2 (95% CI 0.6-1.8) is once again comparable to the within-group effects of 1.3 (95% CI 0.7-2.0) for the ICBT group in this study.

Taken together, there is an emerging base of evidence for exposure-based CBT in pediatric dentistry, and it seems this type of treatment can be delivered effectively in several ways. An important venue for future research is to investigate whether ICBT also produces effects superior to active control conditions and non-inferiority compared to traditional face-to-face CBT.

Clinical Implications

One of the criteria for a phobic diagnosis is that it interferes significantly with a person's normal functioning. In the case of DP and IP, this usually means not being able to receive needed dental care, affecting the person's dental and general health negatively [17]. This study shows that ICBT can be of major clinical value in dentistry. ICBT lowers avoidance and fear, enabling children and adolescents to willingly receive dental care without the need of sedation or restraint methods; thus, the dental and general health of children and adolescents who previously avoided dental care due to DP/IP will, over the long term, be improved.

An important clinical aspect of this study was that dental treatment and in-vivo exposure were provided by general dental personnel, many times dental assistants, with the majority not having any association with the research team and with no prior education in the method or specialist training. Earlier studies have also used exposure-based CBT provided by trained dental personnel [11,12,16] face-to-face. This requires a shift of roles from their traditional dental practices to providing exposure therapy, with communication style and time viewed as the most important factors for the treatment to be successful [28]. However, our results suggest that when ICBT is implemented it is

clinically feasible to only briefly instruct the dentist on how to conduct exposure with patients and their parents and that this information can then be conveyed to the dental assistant and implemented sufficiently well from a therapeutic perspective. We consider this important as it indicates that exposure-based ICBT can be integrated into routine dental care practices and, thus, has the potential to be effectively disseminated while also requiring less time invested from the dental personnel since important parts of the treatment is given on the online platform. Also, participants reported no adverse events, indicating that ICBT is safe, even when in-vivo exposure is conducted by general dental personnel with no training in CBT and at home by the patients and their parents themselves.

Previous research has indicated a need for greater use of evidence-based CBT methods with children and adolescents in dentistry [13]. ICBT has been shown to be as effective as face-to-face treatment in many settings and for different conditions [18]. More specifically, ICBT has been shown to be effective for specific phobia [20]. This study shows that ICBT is also an effective treatment that can be used for children with DP or IP in dentistry. Since no other evidence-based treatment for children or adolescents with DP or IP in dentistry currently exists, ICBT could fill a gap by providing an evidence-based treatment for the field of dentistry if disseminated correctly. ICBT can potentially be given to more patients at a lower cost, thus overcoming the hurdle of too few CBT-trained clinicians. Further, ICBT is more accessible than face-to-face CBT for patients as ICBT allows them to freely choose treatment times. This also extends to adult populations. Currently no trials of ICBT for adults have been conducted, but we find it highly probable that ICBT for adults would be as effective as it is for children and adolescents.

Dentists may hesitate in recommending CBT treatment to their patients, which the slow recruitment in this study suggests. Previous studies have also shown that recruitment for CBT trials in dentistry are difficult [29]. This might be partly due to a lack of interest by general practicing dentists to refer

patients for CBT, which demonstrates the need for making CBT treatment attractive to the dental clinician. Consequently, one aspect that we believe is key for successful dissemination of ICBT is to increase interest within general dentistry for this type of treatment; in this way, families can be referred to and recommended exposure-based treatments when motivation is likely to be high (ie, shortly after a dental visit where the child expressed marked fear).

Finally, this study excluded participants with neurodevelopmental disorders, a group of patients that is common within specialist pediatric dentistry. Future research needs to explore how exposure-based treatment can be successfully adapted for these patients.

Strengths and Limitations

Important strengths of this study were the randomized controlled design, the absence of missing data, the low treatment dropout rate and generally high treatment adherence, and the use of both validated self-rating scales and clinician assessments, which addressed methodological problems seen in previous research [1]. This study also has high external validity because the dental treatment and in-vivo exposure were administered at general dental clinics by personnel with no formal training in CBT. Lastly, the sample was clinically relevant, having had fears of visiting the dentist for an extended time and prior experience of unsuccessful treatment to reduce their DFA or DP/IP through sedation, restraint, or general anesthesia.

As for limitations, the control group in this study was a waiting list. We initially hoped to establish the efficacy of ICBT treatment before testing it against active control conditions or non-inferiority by comparing it to face-to-face CBT. Blinding of the clinicians performing the follow-up interview was not assessed in the study. Also, the study had a fairly small sample size, which precludes, for example, meaningful analyses of subgroups. Furthermore, we used the injection phobia (IP) diagnosis instead of intra-oral injection phobia (I-OIP) in this study. Although it was required that the IP affected the dental treatment when entering the study, it would have been preferable to use the I-

OIP diagnosis. This since we in some cases after the treatment had patients no longer fulfilling I-OIP diagnosis but still meeting IP diagnosis (ie. being able to receive intra-oral injections in dentistry but not being able to receive for example an intramuscular vaccine injections). However, this only attenuated our results which would have been even stronger if an I-OIP diagnosis had been used.

Another limitation of the study is that recruitment through advertisement might not reach the general population, creating a non-representative group. This could also be another factor behind the slow recruitment, suggesting treatment barriers for certain groups that warrant further investigation. Speculatively, some families might have too few resources or be reluctant to commit to a program as long as 12 weeks. This is further exemplified by one participant in the study who dropped out because of time constraints and three participants who did not complete the modules during the treatment time. The extra burden of investing time in a treatment of this type makes it unsuitable for some families and individuals. This limits the use of both CBT and ICBT in its current form, and more research is needed on how to provide a feasible, evidence-based alternative to this group. Perhaps one alternative that should be tested is an even shorter course in exposure-based CBT that is less text dependent.

Last, this study was conducted in Sweden, which has publicly funded, free-of-charge dental services for children. The generalizability of the findings to other dental health care contexts needs to be further investigated. More specifically, how the cost of this type of treatment might influence its acceptability for the patient and the dentist in different contexts needs to be explored.

Conclusions

ICBT for DP or IP seems to be an effective treatment for children and adolescents. The therapy reduces fear and enables the child to willingly receive dental treatment, thereby leading to improved dental and general health. ICBT should be considered a method that increases accessibility to effective psychological treatment in pediatric dentistry.



Data Availability

The data sets generated during and/or analyzed during this study are available from the corresponding author on reasonable request.

Conflicts of Interest

None declared.

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Abbreviations

BAT: Behavioral Approach Test

CBT: Cognitive Behavioral Therapy

CFSS-DS: Children's fear survey schedule - dental subscale

CNCD: Children's negative cognitions in dentistry

DAWBA: Development and Well-Being Assessment

DFA: Dental fear and anxiety

DP: Dental phobia

DSM-IV: The Diagnostic and Statistical Manual of Mental Disorders, Fourth edition

ICBT: internet-based CBT

IPSC: Injection phobia scale for children

IP: Injection phobia

I-OIP: Intra-oral injection phobia

K-SADS-PL: Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children- Present and Lifetime

P-SEQ-DA: Parental Self-Efficacy Questionnaire for Dental Anxiety

PG-BAT: Picture-Guided Behavioral Avoidance Test

RCT: Randomized controlled trial

SEQ-SP: Self-Efficacy Questionnaire for Phobic Situations

VAS: Visual Analogue Scale

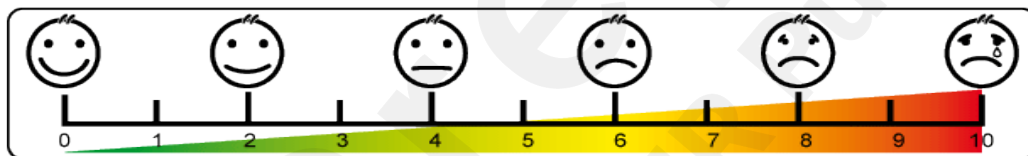


Supplement 1. Contents and photo of the exposure toolkit and Visual Analogue Scale (VAS).

1. Dental exam gloves in various sizes (XS, S, M, L)
2. Face mask
3. Spiral suction
4. Cotton rolls (8)
5. Cotton swabs (4)
6. Syringe needles (2)
7. A reflecting key ring used as reward
8. Mouth mirror
9. Toothbrush
10. Suction aspirator, flexible handle
11. Saliva ejector
12. Probe
13. X-ray plate, in plastic with packaging foam
14. Tooth dryer
15. Topical numbing gel: Lidocaine APL 5%
16. Plastic cup
17. Visual Analogue Scale (VAS)



17:



Supplement 2. Screenshot from ICBT, module with text.

Internetpsykiatri.se
Behandling med kognitiv beteendeterapi

Psykatri Sydväst
STOCKHOLMS LÄN LÄROBESÖK

Meny
Välkommen
Moduler
Allmänt
1. KBT vid fobi
2. Coachutbildning
3. Rädsans cirkel och KBT
4. Exponering
5. Fortsatt exponering, andningsknepet
6. Förberedelse av tandvårdsbesök
7. Tankeknepe
8. Utvärdering och avslappningsknepet
9. Smärta och rädsla
10. Problemlösning och hålla om rädslan
11. Sammanfattning och skriva brev
12. Fortsatt förbättring, diplom och kalas
Filmer Msa 12-15
Filmer Sam 8-11
Filmer Lisa 8-11
Kalle 12-15
Behandlarkontakt
Deltagarredigering
Logga ut

Inloggad som test 3:59 Till behandlingsöversikt

1. KBT vid fobi >

1. KBT vid fobi
2. Coachutbildning
3. Rädsans cirkel och KBT
4. Exponering
5. Fortsatt exponering, andningsknepet
6. Förberedelse av tandvårdsbesök
7. Tankeknepe
8. Utvärdering och avslappningsknepet
9. Smärta och rädsla
10. Problemlösning och hålla om rädslan
11. Sammanfattning och skriva brev
12. Fortsatt förbättring, diplom och kalas
Filmer Msa 12-15
Filmer Sam 8-11
Filmer Lisa 8-11
Kalle 12-15
Behandlarkontakt
Deltagarredigering
Logga ut

Att stödja barn och ungdomar med rädsla

Att utmana sina rädslor är spännande, men också krävande. Som coach är du ett viktigt stöd för barnet under behandlingen. Du kommer att påminna om behandlingen och underlätta praktiskt så att tid och utrymme finns att genomföra övningar. En viktig uppgift är att du tillsammans med internetpsykologen uppmärksammar och uppmuntrar barnets arbetsinsats och framsteg. Extra effektiv blir uppmuntran om den är så tydlig och specifik som möjligt och ges direkt efter handlingen. Du får mer information om effektiva strategier att ge beröm och i vissa fall belöna barnet i nästa modul. En annan viktig princip handlar om en grundläggande acceptans och förståelse för barnets rädsla i tandvårdsituationen. Detta innebär att coachen/föräldern förmedlar till barnet att hen ser att barnet är rädd. Att det inte är farligt att vara rädd. Rädslan finns men den kan utmanas. Konkret innebär detta att istället för att säga till barnet att "du behöver inte vara rädd" säger man att "det är helt ok att vara rädd." Man berättar vidare för barnet "Jag ser din rädsla och märker att den är jobbig för dig. Vi kan tillsammans gå emot den och se till att den inte känns lika jobbigt".

Som det nämndes ovan är ökat självförtroende, dvs. känsla av kompetens i tandvårdsituationen en huvudmålsetting i behandlingen. Barnet får stöd av internetpsykologen att känna sig saker på att det har de strategier, den inre förmågan och det yttre stöd som behövs för att klara tandvården. Därför är det viktigt att som coach inte ta över jobbet helt, eller försöka skydda barnet från allt obehag. Barnet behöver uppleva att hen själv har lyckats klara av utmaningar under behandlingsgången. Som coach ska du finnas med och stötta, påminna om strategier och bolla idéer för att hjälpa barnet att problemlösa. Inläring fungerar bäst om man upptäcker saker själv utan att bli påtvingad eller påtalad. Därför är det viktigt att mobilisera barnets nyfikenhet och verka för att barnet upplever upptäckarglädje. Internetpsykologen du och barnets har kontakt med kan hjälpa er med detta genom hela behandlingen.

Barn lär sig mycket genom att iaktta hur andra gör. Det innebär att omgivningen (föräldrar och syskon) kan fungera som förebilder. Visa och diskutera gärna hur ni som finns i barnets omgivning tar hand om egna rädslor med hjälp av de strategier som ni läser om i behandlingsmodulerna. Du som är coach får gärna fundera över din egen relation till både tandvård och psykologbehandling. Vissa erfarenheter, kunskaper har du av dessa behandlingar? Finns det några situationer och känslor du själv är benägen att undvika? Hur förebygger du överföring av egna undvikanden till barnet? Hur förmedlar du dina positiva erfarenheter, framtidstro och känsla av självkompetens i tandvården till barnet?

När någon i barnets nära omgivning har sprut- eller tandvårdsfobi är det ofta en stor förförelse om denna person själv söker psykologbehandling. Detta har ofta en gynnsam effekt även på barnet och kan minska rädslan även hos det. Vuxna med s.k. extrem tandvårdsrädsla har möjlighet till psykologisk behandling via olika offentliga och privata tandvårdskliniker som har samarbete med psykologer.

När du blir frustrerad
Ibland stöter man på problem under behandlingsgången, kör fast vid något moment, eller blir oense om hur man ska gå vidare. Som förälder eller coach kan man uppleva frustration när barnet inte klarar av olika uppgifter och/eller krånglar. Det är helt normalt att känna så. Frustrationen kan ibland leda till att man visar negativa känslor eller hotar med olika konsekvenser av barnets beteende. Detta är dock sällan till hjälp för nyinläringen, utan stärker istället de negativa associationer som redan finns kopplade till tand och tandvård. Om du har svårt att hantera dina känslor någon gång under behandlingen kan det vara bra att gå ifrån barnet en stund, be någon annan i barnets närhet kliva in, eller ta en paus. Det är därför viktigt att låta lust, nyfikenhet och glädje, kopplat till att klara av utmaningar blir drivkraften i behandlingen. Glöm inte att du kan alltid söka stöd hos er internetpsykologen när sådana situationer uppstår.

Föregående sida | 7/9 | Nästa sida

Modulnavigering
Innehåll
Modul 1- KBT vid fobi
Att utse en Coach
Behandlingsupplägget
KBT vid fobi
Att stödja barn och ungdomar med rädsla
Sammanfattning
Hemuppgifter

Arbetsblad/dokument
Arbetsblad
Min tankekarta
Filmlista för exponering
Rädsans cirkel
Bryta rädsans cirkel
Min exponeringslista
Tidsbokningar tandvård
Smärtermeter
Exponering på tandvårdsmottagning
Ljud, bild, film för exponering och information
Min behandling
Coachens behandlingssammanfattning
Behandlingsbrev
Övningschema
Fortsatta förbättringar och ta hand om bakslag
Dokumentvisare
Belöningsystem
Information till tandvårdsteamet
Tillämpad spänning
Förslag exponeringar
Skapa goda förutsättningar vid tandvård
Fakta tandvård
Mindfulness
Hålla om rädslan, mindfulness 2
Diplom

Supplement 3. Screenshot from ICBT, module with text and picture.

Internetpsykiatri.se
Behandling med kognitiv beteendeterapi

Psykatri Sydväst
STOCKHOLMS LÄN LÄROBESÖK

Meny
Välkommen
Moduler
Allmänt
1. KBT vid fobi
2. Coachutbildning
3. Rädsans cirkel och KBT
4. Exponering
5. Fortsatt exponering, andningsknepet
6. Förberedelse av tandvårdsbesök
7. Tankeknepe
8. Utvärdering och avslappningsknepet
9. Smärta och rädsla
10. Problemlösning och hålla om rädslan
11. Sammanfattning och skriva brev
12. Fortsatt förbättring, diplom och kalas
Filmer Msa 12-15
Filmer Sam 8-11
Filmer Lisa 8-11
Kalle 12-15
Behandlarkontakt
Deltagarredigering
Logga ut

Inloggad som test 7:50 Till behandlingsöversikt

3. Rädsans cirkel och KBT >

1. KBT vid fobi
2. Coachutbildning
3. Rädsans cirkel och KBT
4. Exponering
5. Fortsatt exponering, andningsknepet
6. Förberedelse av tandvårdsbesök
7. Tankeknepe
8. Utvärdering och avslappningsknepet
9. Smärta och rädsla
10. Problemlösning och hålla om rädslan
11. Sammanfattning och skriva brev
12. Fortsatt förbättring, diplom och kalas
Filmer Msa 12-15
Filmer Sam 8-11
Filmer Lisa 8-11
Kalle 12-15
Behandlarkontakt
Deltagarredigering
Logga ut

Kim är tandvårdsräd

Kim är 12 år gammal. Att gå till tandläkaren är det värsta han vet. Så fort Kim lever i i väntrummet, känner lukterna och hör ljuden från mottagningen, knyter det sig i magen och hjärtat slår fortare.

Kim tänker att bedövingsprutan kommer att göra ont därför vill han slippa den, trots att Kim vet att bedövning behövs för att slippa smärta när tandläkaren borrar i tänderna. Kim känner därför även obehag för borren. Kim orolig att tandläkaren inte avbryter när det gör ont. Kim minns hur han blev fasthållen av en läkare när han var liten och skulle få vacciner. När Kim tänker så klar rädslan och magen gör ännu onare. Benen känns dariga och Kim vill helst av allt slippa tandvården. Senast Kim var hos tandläkaren upptäckte tandläkaren ett hål i en tand. När Kim nu tänker på att behöva laga hålet får han panik. Kim förstår helt enkelt inte hur han ska kunna klara av det. När de kommer till tandläkaren är Kim så spänd och stressad att han gråter och inte vill gapa. Därför får Kim en ny tid om fem veckor. Först känns det bra. Kim andas ut när han får veta att lägnigen inte blir av och krampen i magen släpper. Men snart kommer oron krypande igen. Om några veckor ska han besöka tandläkaren igen. Hur ska han klara nästa besök? Och hur ska det gå med tanden om han inte klarar av att laga den? Hur ska Kim göra med alla rädslor, negativa tankar, ont i magen och viljan att fly från tandvården?

Föregående sida | 4/11 | Nästa sida

Modulnavigering
Innehåll
Tandvårdsrädsla
Kim är tandvårdsräd
Så här fungerar rädslor?
Hur får man fobier?
Film 1: Rita tandvårdsrädsla
Hur hjälper KBT?
Film 2: Vad är KBT?
Hemuppgifter

Arbetsblad/dokument
Arbetsblad
Min tankekarta
Filmlista för exponering
Rädsans cirkel
Bryta rädsans cirkel
Min exponeringslista
Tidsbokningar tandvård
Smärtermeter
Exponering på tandvårdsmottagning
Ljud, bild, film för exponering och information
Min behandling
Coachens behandlingssammanfattning
Behandlingsbrev
Övningschema
Fortsatta förbättringar och ta hand om bakslag
Dokumentvisare
Belöningsystem
Information till tandvårdsteamet
Tillämpad spänning
Förslag exponeringar
Skapa goda förutsättningar vid tandvård
Fakta tandvård
Mindfulness
Hålla om rädslan, mindfulness 2
Diplom

P2 Version: 2.6.38 | P2 tema: legacy | P2 Domän: projects26 | Basadressen(base url): https://epsv.regionstockholm.se | Renderingstid (sidan): 0.373 s | Svarstid (sidan): 0.894 s | Memory peak usage: 6 M

Supplement 4. Screenshot from ICBT, home assignment at end of module.

<https://preprints.jmir.org/preprint/42322>

[unpublished, peer-reviewed preprint]

Internetpsykiatri.se
Behandling med kognitiv beteendeterapi

Psykatri Sydöst
STOCKHOLMS LÄNS LANDSTING

Inloggad som test - 11:2 Till behandlingsgränssnitt

11. Sammanfattning och skriva brev > Hemuppgifter

Meny

- Välkommen
- Modul
- Allmänt
- 1. KBT vid fobi
- 2. Coachutbildning
- 3. Rädsans cirkel och KBT
- 4. Exponering
- 5. Fortsatt exponering, ändringsknepet
- 6. Förberedelse av tandvårdsbesök
- 7. Tankeknepe
- 8. Utvärdering och avslappningsknepe
- 9. Smärta och rädsia
- 10. Problemlösning och hålla om rädsian
- 11. Sammanfattning och skriva brev
- 12. Fortsatt förbättring, diplom och kalas
- Filmer Msa 12-15
- Filmer Sam 8-11
- Filmer Lisa 8-11
- Kalle 12-15
- Behandlarkontakt
- Deltagarredigering
- Logga ut

Välkommen till hemuppgifter för modul 11!

Hur går det med exponeringarna hemma och på tandvårdsmottagningen? Vilka är dina senaste erfarenheter?

Sammanfatta dina kunskaper och erfarenheter från internetbehandlingen i arbetsbladet "min behandling". Skriv i rutan här nere om det gick bra att göra det.

Be din coach sammanfatta sina erfarenheter från internetbehandlingen i arbetsbladet "Coachens behandlingsammanfattning". Skriv i rutan här nere om det gick bra att göra det.

Skriv ett brev till en fantasikompis eller till dig själv enligt instruktionerna i arbetsbladet "brev till mig själv". Gick det bra att göra det?

Spara

Skicka Klicka här när du är färdig med modulen, då skickas dina svar till din behandlare

Föregående sida | 5/5 | Nästa sida

Modulnavigering

- Innehåll
- Välkommen till modul 11!
- Sammanfattning av de tidigare modulerna
- Behandlingsammanfattning
- Brev till mig själv, exempel
- Hemuppgifter

Arbetsblad/dokument

Arbetsblad

- Min tankekarta
- Filmlista för exponering
- Rädsans cirkel
- Bryta rädsans cirkel
- Min exponeringslista
- Tidsbokningar tandvård
- Smärttermometer
- Exponering på tandvårdsmottagning
- Ljud, bild, film för exponering och information
- Min behandling
- Coachens behandlingsammanfattning
- Behandlingsbrev
- Övningschema
- Fortsatta förbättringar och ta hand om bakslag

Dokumentvisare

- Belöningssystem
- Information till tandvårdsteamet
- Tillämpad spänning
- Förslag exponeringar
- Skapa goda förutsättningar vid tandvård
- Fakta tandvård
- Mindfulness
- Hålla om rädsian, mindfulness 2
- Diplom

P2 Version: 2.6.38 | P2 tema: legacy | P2 Domän: projects26 | Basadressen(base url): https://epsv.regionstockholm.se | Renderingtid (sida): 0.364 s | Svarstid (sida): 0.081 s | Memory peak usage: 6 M

Supplement 5. Scores of the children and their parents in the Internet-based cognitive behavioral therapy (ICBT, n=17) and the control (n=16) groups at the follow-up.

Outcome variable	ICBT group Mean (SD)	Control group Mean (SD)	Mean difference	95% CI	<i>P</i> value ^a
<i>Child</i>					
Dental procedures managed ^b , n	14.7 (2.4)	11.6 (3.5)	3.1	1.0 to 5.3	.005
Dental fear and anxiety ^c	25.4 (7.7)	37.8 (14.9)	-12.4	-20.7 to -4.1	.005
Negative cognitions ^d	12.1 (12.4)	23.7 (13.7)	-11.6	-21.2 to -1.9	.020
Injection fear ^e	31.4 (8.3)	44.0 (13.1)	-12.6	-20.5 to -4.7	.003
Self-efficacy ^f	44.0 (15.4)	29.5 (7.1)	14.4	5.8 to 23.1	.002
<i>Parent</i>					
Dental procedures managed ^b , n	14.3 (3.2)	11.8 (3.7)	2.5	0.1 to 5.0	.042
Dental fear and anxiety ^c	24.6 (8.0)	37.7 (13.5)	-13.1	-21.0 to -5.3	.002
Parental self-efficacy ^g	115.0 (22.1)	101.8 (22.0)	13.1	-2.5 to 28.8	.097

^aP values are based on *t* test

^bThe picture-guided behavioral avoidance test (PG-BAT); score range: 0-17

^cThe Children's Fear and Survey Schedule – Dental Subscale (CFSS-DS); score range: 15-75

^dThe Children's Negative Cognitions in Dentistry (CNCD) scale; score range: 0-50

^eThe Injection Phobia Scale for Children (IPSC); score range: 18-90

^fThe Self-Efficacy Questionnaire for Phobic Situations (SEQ-SP); score range: 14-70

^gThe Parental Self-Efficacy Questionnaire for Dental Anxiety (P-SEQ-DA); score range:0-120

Supplement 6. Within-group changes and effect sizes between baseline and treatment follow-up for the Internet-based cognitive behavioral therapy (ICBT) group.

Outcome variable	Mean difference	95% CI	<i>t</i> test		
			<i>P</i> value ^a	Cohen <i>d</i>	95% CI
<i>Child</i>					
Dental procedures managed ^b , <i>n</i>	3.6	2.0 to 5.2	<. .001	1.2	0.5 to 1.8
Dental fear and anxiety ^c	−11.6	−16.1 to −7.2	<. .001	1.3	0.7 to 2.0
Negative cognitions ^d	−13.3	−18.7 to −8.0	<. .001	1.4	0.7 to 2.1
Injection fear ^e	−10.6	−16.0 to −5.3	.001	1.1	0.4 to 1.7
Self-efficacy ^f	18.3	11.8 to 24.8	<. .001	1.5	0.8 to 2.2
<i>Parent</i>					
Dental procedures managed ^b , <i>n</i>	3.7	1.8 to 5.6	.001	1.0	0.4 to 1.6
Dental fear and anxiety ^c	−10.9	−15.7 to −6.1	<. .001	1.2	0.5 to 1.8
Parental self-efficacy ^g	3.7	3.3 to 10.7	.281	0.3	−0.2 to 0.8

^a*P* values are based on *t* test

^bThe picture-guided behavioral avoidance test (PG-BAT); score range: 0-17

^cThe Children's Fear and Survey Schedule – Dental Subscale (CFSS-DS); score range: 15-75

^dThe Children's Negative Cognitions in Dentistry (CNCD) scale; score range: 0-50

^eThe Injection Phobia Scale for Children (IPSC); score range: 18-90

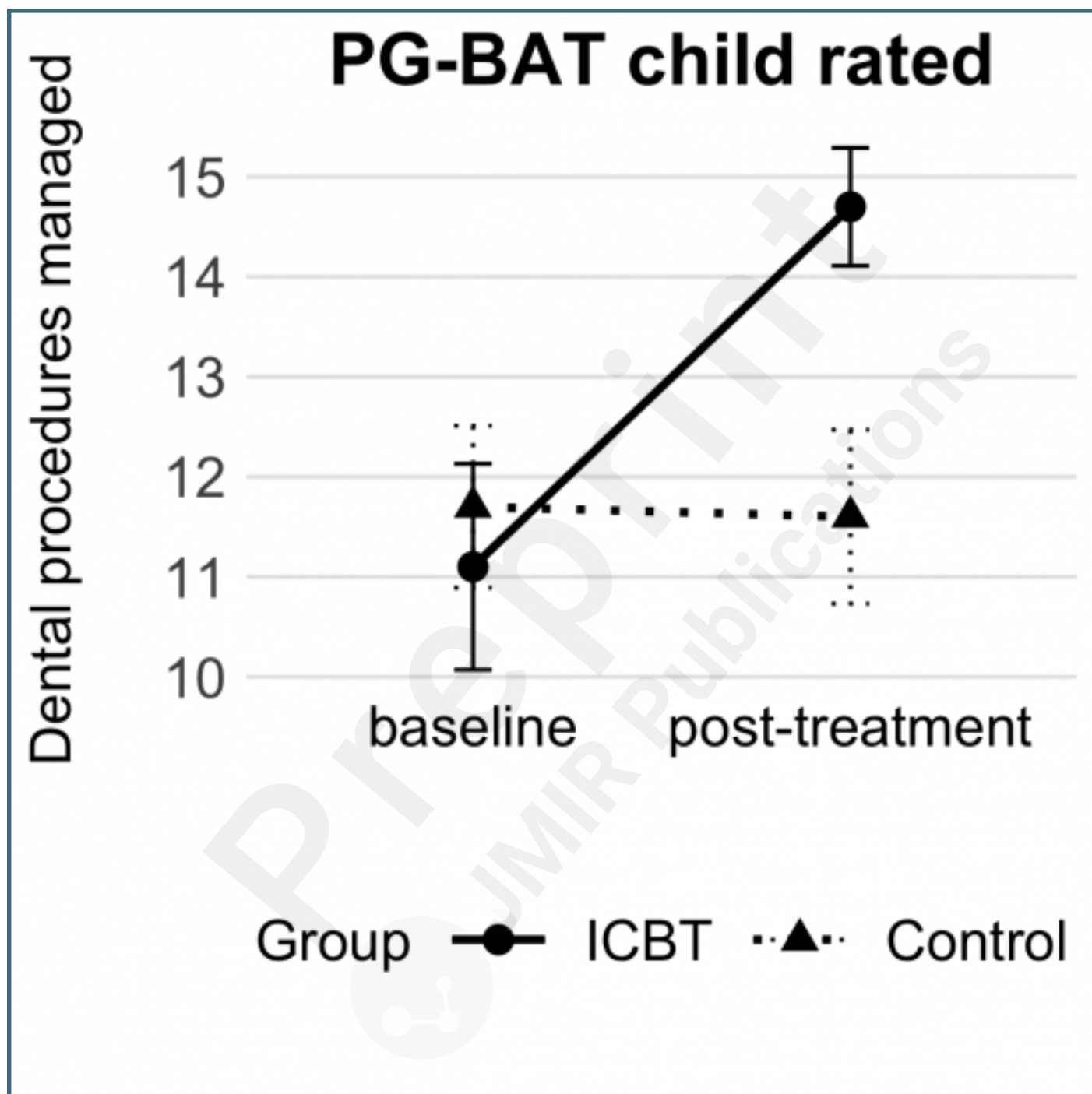
^fThe Self-Efficacy Questionnaire for Phobic Situations (SEQ-SP); score range: 14-70

^gThe Parental Self-Efficacy Questionnaire for Dental Anxiety (P-SEQ-DA); score range: 0-120

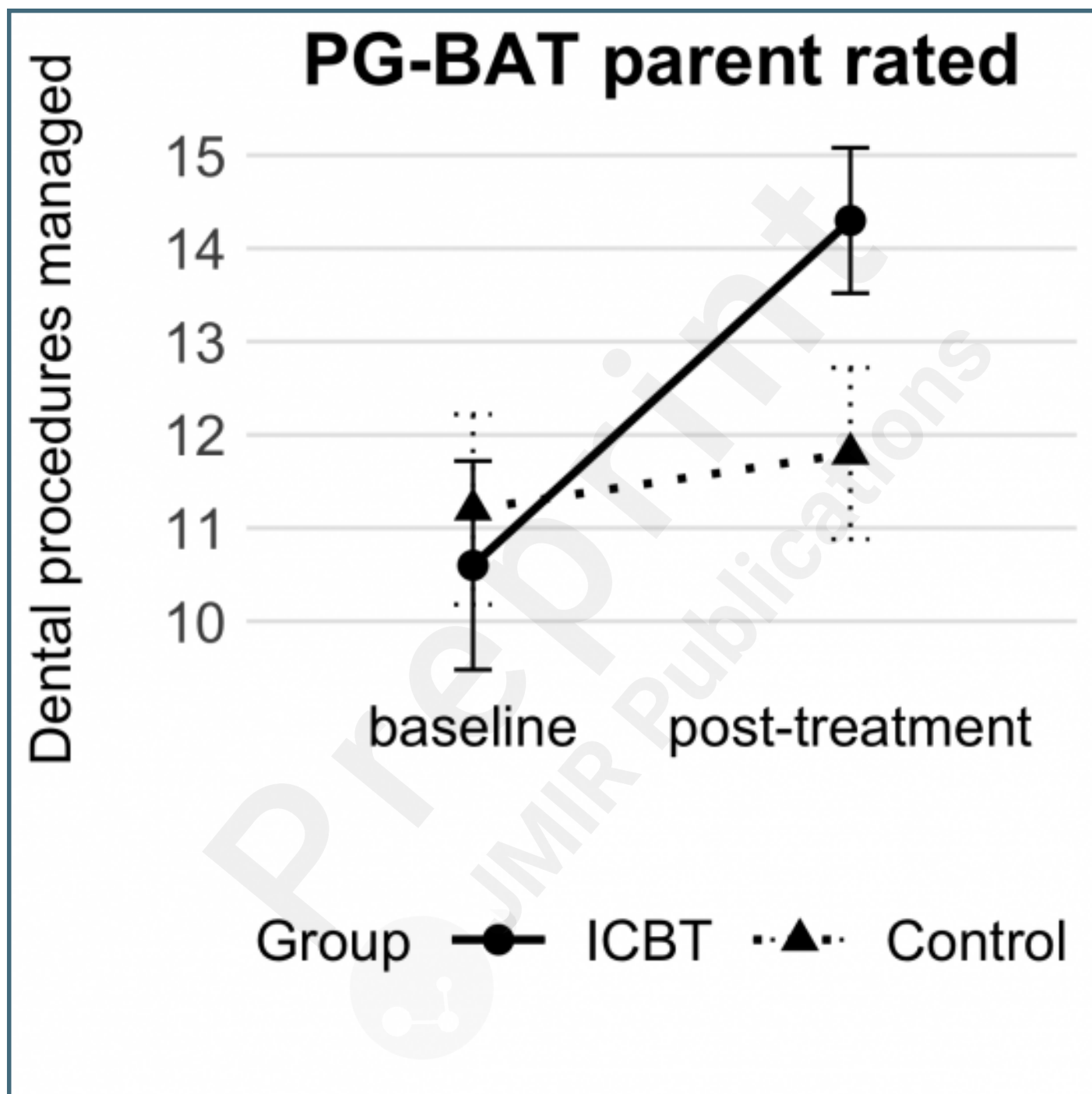
Supplementary Files

Figures

Number of dental procedures managed according to the Picture-Guided Behavioral Avoidance Test (PG-BAT). Child and parent ratings at two time points (baseline and post-treatment) in the two study groups: the internet-based cognitive behavioral therapy (ICBT) group and the control group.



Number of dental procedures managed according to the Picture-Guided Behavioral Avoidance Test (PG-BAT). Child and parent ratings at two time points (baseline and post-treatment) in the two study groups: the internet-based cognitive behavioral therapy (ICBT) group and the control group.



Multimedia Appendixes

Supplement 1. Contents and photo of the exposure toolkit and Visual Analogue Scale (VAS).

URL: <http://asset.jmir.pub/assets/54e3f308230bb58c10157ecda7a9ab4f.png>

Supplement 2. Screenshot from ICBT, module with text.

URL: <http://asset.jmir.pub/assets/60f981567c8e138e7c33698d0379e5ac.png>

Supplement 3. Screenshot from ICBT, module with text and picture.

URL: <http://asset.jmir.pub/assets/5af4820c0a2f7a7978519f5cfdb842a5.png>

Supplement 4. Screenshot from ICBT, home assignment at end of module.

URL: <http://asset.jmir.pub/assets/350183b44ad7bb9e6b8cfcbb3545e33.png>

Flowchart of participant recruitment and allocation to the two study groups: internet-based cognitive behavioral therapy (ICBT) and the control group.

URL: <http://asset.jmir.pub/assets/758616da39e4a81abdc10163ee34989c.pdf>

Item #17 from the list of Supplement 1. Contents and photo of the exposure toolkit and Visual Analogue Scale (VAS). [Note to editor, this should be in conjunction with supplement 1 and is the item 17 of the content photo].

URL: <http://asset.jmir.pub/assets/ce48cc48da80d5cd9536b19afddde479.png>