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Contents

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REVIEW

- 112 Pediatrician-friendly perspectives on cognitive behavioral therapy for anxious youth: Current status and clinical implications for the next normal
Friedberg RD

MINIREVIEWS

- 124 Corrosive upper gastrointestinal strictures in children: Difficulties and dilemmas
Sarma MS, Tripathi PR, Arora S
- 137 Beyond kidney stones: Why pediatricians should worry about hypercalciuria
Penido MGMG, Tavares MS

ORIGINAL ARTICLE

Retrospective Study

- 151 Pediatric firearm-associated fractures: Analysis of management and outcomes
Lieu V, Carrillo LA, Pandya NK, Swarup I

Observational Study

- 159 Healthcare staff as promoters of parental presence at anesthetic induction: Net Promoter Score survey
Velayos M, Estefanía K, Álvarez M, Sarmiento MC, Moratilla L, Sanabria P, Hernández F, López Santamaría MV
- 168 Association of breastfeeding with tidal breathing analysis in infants with bronchiolitis
Perikleous E, Fouzas S, Karageorgiou A, Steiropoulos P, Nena E, Chatzimichael A, Tsalkidis A, Paraskakis E

META-ANALYSIS

- 177 Prevalence of pulmonary hypertension among children with Down syndrome: A systematic review and meta-analysis
Taksande A, Pujari D, Jameel PZ, Taksande B, Meshram R

CASE REPORT

- 192 Treatment of alopecia totalis/universalis/focalis with vitamin D and analogs: Three case reports and a literature review
Papadimitriou DT, Bothou C, Dermizaki E, Alexopoulos A, Mastorakos G

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Pediatrician-friendly perspectives on cognitive behavioral therapy for anxious youth: Current status and clinical implications for the next normal

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Abstract

Pediatric anxiety disorders are common and often debilitating conditions. Cognitive is a psychosocial intervention that represents a potentially powerful antidote to these disorders. This article reviews data from treatment outcome studies, meta-analyses, and systematic reviews as well as from moderation/mediational investigations. The literature supports the efficacy, effectiveness, and durability of positive treatment outcomes for pediatric anxiety disorders. Recommendations for clinical applications are suggested.

Key Words: Pediatric anxiety; Cognitive behavioral therapy; Coping cat; Exposure

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Core Tip: There are several core tips in this therapeutic advances article. First, while the state-of-the-science supporting cognitive behavioral therapy (CBT) for pediatric anxiety is very strong, proper delivery of genuine CBT by trained providers is fundamental to its success. Clinicians should provide CBT in a manner that balances flexibility within fidelity. Most importantly, exposure is an essential component to any CBT approach to pediatric anxiety disorders.

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INTRODUCTION

Anxiety disorders are highly prevalent conditions in child and adolescent populations [1-5]. Approximately 6.5% of youth worldwide suffer from anxiety disorders [4]. Anxiety disorders are also gateway disorders [3,6]. Thus, pediatricians frequently care for anxious youth in their practices and these young patients are frequently impaired. Effective psychosocial treatments are needed.

Fortunately, cognitive behavioral therapy (CBT) is widely regarded as the premier psychosocial treatment for pediatric anxiety disorders [7,8]. The approach has been empirically supported by meta-analyses, mediational and moderation studies, systematic reviews, randomized clinical trials (RCTs), controlled investigations, and case reports. Based on the aggregated results, both the American Academy of Child and Adolescent Psychiatry (AACAP) and the American Psychological Association (APA) see CBT as the gold-standard treatment. More specifically, AACAP [9] referred to CBT as the “front-line” psychosocial intervention for pediatric anxiety disorders. The APA defined CBT for anxiety disorders as a “well-established” treatment [10]. Reaching the “Well-Established” threshold means that CBT was evaluated by at least 2 RCTs indicating efficacy where the treatment outperformed pill placebo, psychological placebo, or another treatment comparison group. Further, the specific intervention must have been manualized and examined by two different research teams. Finally, the protocol is required to have demonstrated equivalence to another Well-Established treatment or two approaches studied in investigations with at least $n = 30$. In sum, the well-established threshold is a stringent criterion. While anxiety disorders are highly prevalent and impairing, CBT is a widely deployed and effective intervention.

In this pediatrician-friendly perspective, CBT basics are briefly summarized and the empirical literature supporting the approach is discussed. Results from treatment outcome evaluations examining the seminal Coping Cat program, data from the Child/Adolescent Anxiety Multi-Modal Studies (CAMS) along with findings from reviews and meta-analyses are delineated. Further, the impact of mediators as well as moderators are presented. Finally, the article concludes with clinical recommendations for the peri- and post pandemic period.

BASIC DESCRIPTION OF CBT FOR PEDIATRIC ANXIETY: THERE'S NOTHING LIKE THE REAL THING

CBT is a multi-component treatment paradigm that is widely adopted [11-14]. Contemporary CBT with youth is increasingly adopting a modular approach to treatment (mCBT) [15-19]. In general, modular approaches identify the best procedures commonly found in many treatment packages/protocols and organize them into conceptual clusters. The techniques are grouped into particular units that share a purpose or function [e.g. orienting patients to treatment, cognitive restructuring (CR), *etc.*]. mCBT offers several compelling advantages including parsimony, reduced training burden, personalized/individualized care, and attractiveness to providers [15]. Typical modules include psychoeducation (PE), basic behavioral procedures (BBPs), CR, and exposure/experiments.

PE paves the way for the various intervention strategies. PE teaches patients as well as their families about anxiety disorders and treatment alternatives [20,21]. Moreover, PE enables genuine informed consent as well as increased help-seeking, collaboration, demystification, universality, empowerment, and hopefulness [18,22-25]. It may be delivered verbally or through books, pamphlets, video/audio recordings, internet sites, and mobile applications [17,18].

BBPs are based on “systematic application of conditioning principles to clinical disorders [26].” Typically, these procedures focus on acquiring and applying specific skills to particular problems [14]. BBPs include a stable of familiar approaches including relaxation, contingency contracting, and social skills training.

CR and rational analysis (RA) focus on re-engineering thought content and processes respectively [17,18,27]. Problem-solving, self-instructional, and self-talk techniques are classic CR procedures. A voluminous literature base exists that supports the use of CR methods [27-34]. RA procedures are more advanced methods and enjoy a long history in CBT [35-40]. “Analysis of meaning and attitudes exposes the unreasonable and self-defeating nature of the attitudes [38].” Tests of evidence, reattribution, decatastrophizing, and universal definitions are common techniques used in RA [38-40].

Exposure is seen as essential when treating anxiety disorders in youth[8,17,41-49]. Successful completion of exposure tasks involves young patients' undivided attention, use of coping skills, and persistence amid negative emotional arousal[50]. The exposure component in CBT treatment uniquely differentiates CBT from supportive treatment[45]. Approximately 88% of the strongest studies evaluating treatment outcome for anxiety disorders in youth incorporated exposure in their intervention protocol[46]. When exposure elements were absent from CBT treatment approaches for anxiety, the effects were significantly attenuated[42,49,51]. In a meta-analysis focusing on dismantling the effective components of CBT for anxiety disorders in youth that included 75 studies, in-session exposure resulted in larger effect sizes when comparing CBT to wait-list control groups[41]. Increasing the emphasis on in-session exposure over anxiety management strategies such as those procedures described in the basic behavioral tasks as well as the CR modules may improve CBT's efficacy[41].

Proper delivery and dosing of genuine CBT is crucial. There is data that clinicians self-identify as CBT practitioners, yet their in-session behavior does not resemble the true treatment approach[52]. Practicing flexibly with faithful adherence to CBT tenets is the current clinical watchword[11,53-55]. Competent CBT providers are seen as expert multi-taskers[56]. Consequently, they are able to balance faithful adherence to the model while making immediate adaptations in response to young patients' unique presentations[11]. Flexible applications of CBT enable real-time adaptations, matching treatment to individuals' psychological characteristics, and incorporating cultural vicissitudes into the intervention[53-55]. In this way relevance matching[57] is better achieved which facilitates building a more personalized treatment package.

TREATMENT OUTCOME STUDIES: COPING CAT

Coping Cat is a CBT protocol that is typically delivered in 12-16 sessions divided into two phases[12,58-60]. The classic FEAR plan punctuates the first 9 sessions. The feeling frightened component helps young patients monitor their physiological signs of anxiety. Identifying their catastrophic predictions defines the expecting bad things to happen part. Developing coping counter-thoughts and adaptive problem-solving strategies is the focus of attitudes and actions that can help. The fourth segment, results and rewards, teaches children to reward their productive coping efforts. Exposures and behavioral experiments make up sessions 10-16. During this stage, patients apply the skills acquired *via* the FEAR plan in various anxiety producing situations. Homework assignments called show that I can exercises are completed over the course of the Coping Cat protocol to facilitate treatment generalization and a sense of self-efficacy. The treatment package has been widely implemented in the United States and internationally[59,61].

Early RCTs evaluating the Coping Cat yielded very encouraging findings[62,63]. Coping Cat outperformed a wait-list control group in a RCT on several measures with young patients resulting in less symptoms, greater coping ability, and increased social skills[62]. Moreover, the gains showed durability with improvements holding up at 1 year[62] as well as 3.5 years later[64]. A subsequent RCT[63] also found similar positive results with 50% of patients being symptom-free at the end of treatment. These gains were sustained at 1 year[63] and 7.5 years after treatment[65].

Coping Cat was compared to an active treatment contrast condition (Humanistic Therapy) in a recent study including 133, 9-14 year old youth[45]. Although both treatments yielded similar acute response data, the CBT group was more likely to fully recover and no longer meet diagnostic thresholds at the end of treatment than counterparts receiving the Humanistic approach. Further, the patients in the CBT condition evidenced higher recovery rates at the 1 year follow-up point. The study authors'[45] concluded that CBT resulted in greater breadth and generalizability of treatment gains as well as more durability over time.

In an effectiveness study examining Coping Cat delivered by practitioners in a community setting rather than in a more controlled academic setting, participants in the treatment package outperformed wait-listed control group cohorts and the gains were maintained at 2 year follow up points[66].

Intolerance of uncertainty (IU) was targeted in a study examining Coping Cat's clinical promise[67]. IU is seen as an important mechanism of action in anxiety disorders. This study found that decreased IU from pre-post treatment was associated with lowered functional impairment, increased coping, and decreased anxiety severity. These results imply that focusing specifically on uncertainty in CBT for anxiety may improve outcomes.

Treatment outcome studies: The CAMS

The CAMS was the most wide-ranging RCT evaluating the use of CBT (Coping Cat) and Serotonin Selective Reuptake Inhibitors (SSRI, Sertraline) for the treatment of anxiety in youth[68,69]. The project involved 488 participants (7-17 years of age) across multiple sites and assessed outcomes at 12, 24, and 36 wk. The data indicated that after 12 wk, the CBT, SSRI, and CBT + SSRI conditions all outperformed the placebo group [68]. More specifically, 80.7% of youth in the combination, 59.7% in the CBT alone, and 54.9% in the singular sertraline treatment arm improved on the Clinical Global Impression Scale. A dismantling study of 279 participants enrolled in the CAMS project showed that anxious youth who received more sessions devoted to exposure demonstrated greater symptom reduction and functional improvement[8].

In a project examining response and remission rates, all three arms of CAMS (CBT, SSRI, COMBO) sustained their rates of improvement, however the superiority of the combination treatment did not persist at the 36 wk mark[69]. Extended long term gains were evaluated in a study of 319 youths[70]. Based on linear and quadratic growth models, CBT was associated with faster improvement, academic achievement, and greater life-satisfaction. These gains appear to endure for approximately 6.5 years.

The question of which treatment arm is best-suited for which patients was researched in another secondary data analysis[71]. The single treatments (CBT, SSRI) worked equally well for patients with lower levels of anxiety whereas the combined CBT + SSRI package was essential for symptom remission in patients with more severe anxiety. Additionally, low SES predicted poorer treatment response. Thus, it appears that the combination treatment is indicated for more distressed individuals who may be more financially challenged.

REVIEWS AND META-ANALYSES

An early review article concluded RCTs evaluating CBT spectrum approaches yielded positive treatment outcomes earning medium effect sizes[72]. In a later review of 24 RCT's with children and adolescents diagnosed with a variety of anxiety disorders, large pre-post differences were reported[73]. Additionally, rates of clinical improvement ranging from 60%-80% were found. Further, when a conservative benchmark of remission was applied, 50%-70% of patients claimed they were symptom free[73]. A recent comprehensive review evaluated multiple treatment paradigms for anxiety according to various levels[46]. The review concluded that CBT earned a large effect size and demonstrated durability of outcomes with diverse populations. Moreover, when applying another more stringent criteria such as functional improvement in patients, CBT was the only approach that met the Well-Established threshold. Children who received CBT were 3 to 7 times more likely to show improvement than cohorts in the passive control condition[74].

A variety of meta-analyses examining CBT's potential to reduce anxiety disorders have been conducted[75-78]. In a meta- analysis exploring the efficacy of CBT for anxiety disorders in youth, 11 meta-analyses incorporating 350 comparisons were evaluated[75]. The results yielded medium to large effect sizes for CBT compared to non-active controls [mean weighted effect size (d) = 0.76]. Further, the effect sizes were somewhat smaller when testing CBT *vs* active comparison groups (d = 0.40). Finally, when pre-post differences in anxiety for CBT were studied, large effect sizes were found (d = 0.88). When examining compete symptom recovery, another meta-analysis concluded 61 percent of youth show symptom remittance after a course of CBT[78].

A systematic review and meta-analysis including 115 studies covering 7719 patients with a mean age of 9.2 years showed that when CBT was compared to wait list comparison groups, CBT led to greater symptom reductions and remissions[77]. Moreover, the same meta-analysis found that attrition rates were lower in the CBT condition than the in pill/placebo contrast groups. Moreover there were less adverse events in patients receiving CBT than in counterparts who were in the medication groups (SSRI). These results appear to suggest that CBT is more well-tolerated by young patients than medication[79]. Finally, the combination of CBT with SSRIs was a stronger treatment than either mono-therapy alone[77].

CBT also demonstrates considerable promise when applied to anxious adolescents. Large pre-post differences, medium to large effects sizes, and encouraging remission rates were found. In particular, post-treatment remission rates ranged from 27%-35% and from 52 to 60 percent in various studies[73].

MODERATORS AND MEDIATORS

Examining moderator and mediator variables adds another dimension to treatment outcome studies. Moderation analyses can determine what treatment, for what type of patient, under which circumstances works best[80]. A moderator variable is defined as either a qualitative or quantitative construct that “affects the direction and/or strength of the relationship between an independent or predictor variable and a dependent or criterion variable[81]”. Moderator variables represent pre-randomized characteristics that do not explain treatment effects but rather interact with them[82]. In general, moderator analysis examines performance of subgroups in certain conditions[80].

Conversely, mediators specify the mechanisms of change in dependent variables and speak to how or why effects occur[81]. Behavior change, especially decreased avoidance, is a powerful mediator of treatment outcome for anxiety disorders[83]. Negative cognitions especially future-oriented, catastrophic thoughts were also seen as significant mediating variables and homework assignments earned small to medium effect sizes[83]. Results for parental behavior and treatment alliance were deemed inconclusive as far as their contribution to outcomes[83].

Several studies based on the CAMS investigations identified some additional potential mediators. In a follow-up investigation including 488 youths, coping efficacy mediated clinical outcomes[84]. Perception of social threats mediated treatment response in a naturalistic follow-up evaluation of 319 young patients enrolled in CAMS[85]. Somatic symptoms mediated treatment outcome for the sertraline arm of the CAMS study[86]. The most consistent predictors of treatment response found across studies included type of primary anxiety disorder, severity of anxiety, comorbidities, and parental psychopathology[82].

In an analysis of the CAMS data based on 488 young participants, no demographic variables moderated the clinical outcomes[87]. A recent comprehensive review evaluated research on moderator variables such as co-morbidity, presence of social anxiety, gender, age, race/ethnicity, parental involvement, parental psychopathology, family factors, therapist variables, and dose of therapy[83]. These investigators noted that treatment outcomes did not vary as a function of the severity of illness and regardless of pre-treatment severity, anxious youth demonstrated a similarly favorable treatment response. On the other hand, co-morbid conditions such as autism spectrum disorders, depression, and attention deficit disorder did moderate the outcome. They concluded gender and ethnicity did not significantly influence treatment outcome, indicating that male and female, as well as diverse youth, benefit similarly from CBT. Moreover, parental involvement in treatment and family factors were not seen as significant moderators. Parental psychopathology had some modest influence on treatment depending on the age of the child, with a stronger impact on outcomes for younger youth. Overall, the data on age of the patient was considered inconclusive. Finally, therapist variables such as flexibility and collaboration demonstrated moderating effect on treatment outcomes.

A number of reviews agree that demographic variables (*e.g.* biological sex, race/ethnicity, SES, *etc.*) [43,73,82] do not significantly moderate treatment outcome for anxiety disorders in youth. Nonetheless, there is some evidence that gender and ethnicity are correlated with differential attrition rates[60]. It could be argued that many of these studies are under-powered to detect significance, but this criticism is somewhat recently debunked[72]. The CBT procedures appear to be applicable to a wide range of patients[83,87].

RECOMMENDATIONS

The literature reviewed tells a compelling story with multiple implications for clinical practice. The data supports CBT's effectiveness and efficacy as well as its wide applicability to diverse groups of young patients[8,45,62,63,67,83,87]. Additionally, CBT enjoys durable positive effects[64,65,69,70]. CBT is equally as effective as SSRIs but is associated with less adverse side effects[68,77,79]. Psychological distress characterized by anxiogenic cognitions and behavioral avoidance are apparently the most productive targets for intervention[2]. Perhaps most pivotally, the exposure component to treatment is essential to distinguish between more and less effective CBT as well as differentiate CBT from other systems of psychotherapy[8,17,41-51]. Simply, CBT for anxiety without exposure is a diluted approach[88].

The extant literature aids pediatricians in treatment planning. The findings of equivalence between SSRIs and CBT in treating anxious youth gives patients and

providers multiple choices. Either mono-therapy is suitable for these individuals, but CBT is associated with less adverse side effects. Pediatricians might consider starting less severely distressed patients on a course of CBT since it is associated with fewer side effects, track progress, and if indicated, augment the CBT with medication. For more severe presentations especially those with strong somatic complaints, the combination treatment seems best.

The world is currently in the midst of a devastating public health crisis caused by the coronavirus disease 2019 (COVID-19) pandemic. In general, pandemics are characterized by increased anxieties and worries[89-92]. Various authors believe the COVID-19 pandemic is a powerful trigger for health anxiety[93,94]. Hospital records in the United States document a startling increase by 24% and 31% in emergency room visits due to anxious symptoms for children and adolescents respectively[95]. Regrettably, the psychological sequelae do not appear to self-limiting[90]. They are here to stay.

Accordingly, ensuring the proper delivery of CBT to young patients is pivotal to meet the rising tide of cases, provide effective and efficient treatment as well as minimize clinical errors. However, there are relatively few clinicians practicing in treatment-as-usual settings who are trained to deliver a proper dose of evidence-based psychotherapies[96]. Unfortunately, many clinicians incorrectly self-label themselves as CBT clinicians[52,97-99]. In fact, when actual clinical practices were studied, few providers who self-labelled themselves as CBT oriented practitioners genuinely delivered a proper dose of CBT[52]. This finding is consistent with the phenomenon of “posing” as a CBT therapist rather than practicing as one[99]. Thus, attention needs to be regularly directed to the proper application of CBT with youth.

Clinicians are also well-advised to practice CBT in a faithful and flexible manner[53-55]. Patients typically arrive to clinics experiencing different family circumstances and living in diverse cultural contexts. Additionally, pediatric patients’ predisposing characteristics and learning styles likely make them more or less receptive to varying therapeutic styles. For instance, some young patients may present to treatment with limited literacy. In these cases, clinicians are well-advised to rely on more concrete behavioral procedures such as exposure techniques. Additionally, scaffolding the cognitive demands to make the methods more accessible is recommended. Fortunately, there are many child-friendly iterations of traditional cognitive interventions available that are suitable for patients with limited literacy[11,16-18,47,58,60,61]. Perhaps, the attention alert CBT-oriented clinicians pay to working faithfully and flexibly partially explains the wide applicability of the approach.

Employing exposure based treatments for youth is a crucial task for clinicians. Exposure is underutilized in general[100-105] especially with younger children and children prescribed medication[8]. For instance, it was found that only 13% CBT oriented therapists used exposure based techniques[100]. In another study, a mere 40% of practitioners employed exposure procedures and these interventions accounted for only 1/5th of all clinical strategies utilized[103]. Further, exposure techniques were applied 19% of the time compared to CR (57%) and breathing exercises (53%)[105]. Finally, 48% percent of clinicians reported not implementing exposure due to lack of training[104]. In sum, continued and close attention to training clinicians in exposure-based treatments is necessary to fully equip practitioners with essential skills.

Multiple guidelines exist to guide clinicians’ work with youth during exposure procedures[11,17,18,44]. Collaboration between clinicians and patients is essential during exposure. It is important to remember that exposure is done with rather than to patients. Children spearhead the exposure journey and the key for practitioners is to nurture young patients’ willingness to encounter instead of avoid anxiety producing situations.

Exposure starts with PE and providing a rationale. Metaphors and analogies such as germ theory where immunity is often bolstered by exposure are helpful. Additionally, the use of videos or books where coping models (*e.g.* Bruce Wayne aka Batman surrounding himself with feared bats) approach their heretofore dreaded circumstances are other options. Graduated exposure is the preferred delivery mode. Accordingly, exposure hierarchies which include different successive steps (*e.g.* challenges) operationalized through collaboratively constructed Subjective Units of Distress (SUDS) (*e.g.*, 1-10, 1-100) are commonly employed. Patience by providers is recommended and a useful axiom for using a hierarchy is “start in the low-mid SUDS range and proceed slowly.”

Exposures should be comprehensive and done repeatedly. In-session exposures should be completed several times and then at-home exposures are attempted regularly between appointments. Moderate to high levels of emotional arousal in response to in-session exposures are favored[106]. Further, the procedure should encompass cognitive, behavioral, physiological, emotional, contextual and inter-

personal elements of the anxiety response.

Developmental sensitivity and clinical creativity is pivotal when crafting exposures [11,16,17,44,53-55,58,60,61]. Rewards for successful efforts are strongly suggested for younger individuals. Game and playful exposures are especially engaging for pediatric patients. It is important to remember that the goal in exposure treatment is for new approach learning to occur [107]. Improved self-efficacy and greater self-control should result. Therefore, any exposure-based procedure should not be terminated before new learning emerges through either reductions in subjective distress, increased emotional tolerance, and/or greater approach behavior.

Finally, after the exposure is completed, clinicians and patients debrief the experience. Patients compare their predictions about what might happen to what actually occurred. They then craft their new conclusions and inferences based on the outcomes of the exposure.

The use of telehealth services has dramatically increased during the COVID-19 pandemic [108,109]. Virtual delivery of clinical services offers intriguing advantages and opportunities [110-112]. CBT provided *via* telehealth platforms is convenient and allows for interventions in young patients' home environment [110,112]. In particular, exposure done *via* telehealth allows for the clinician to process this experience with young patients while they engage in the procedure in their familiar context potentially adding to generalizability.

Finally, integrated pediatric behavior health care settings are well-suited to meet the cascading rate of new cases expected in the post-pandemic period. Ninety percent of children visit a pediatrician [113]. For many families, pediatric offices are the first stop for treating behavioral health complaints [114-116]. Additionally, these care settings enable early identification and intervention [112,117-120]. Delivering CBT to anxious youth in pediatric settings increases access in familiar settings and enables better collaboration between pediatrician and behavioral health specialists.

CONCLUSION

CBT with anxious children and adolescents is a clear success story. Reaching the Well-Established threshold as well as equivalence with SSRI's is a major achievement. Extending CBT's reach into pediatric integrated behavioral health settings is an important next step. Broadening access to services from properly training clinicians will enhance the care of young people and sustain CBT practices.

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