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Review Article

Management of separation anxiety in pediatric patients in a dental setting

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ABSTRACT

Aim: To inculcate a better understanding and facilitate a better management of separation anxiety seen in children in dental clinic.

Conclusion: Separation anxiety is often seen in pediatric patients. Although, not much thought is given to it as parents presume the anxiety to be merely a byproduct of a new environment and unfamiliar faces. It was significant to compile separation anxiety seen in children with a special emphasis on its dental aspect which will aid pedodontists as well as general practitioners in a swift recognition of the symptoms followed by prompt management of pediatric separation anxiety patients in a dental setting.

1. Background

A 12- or 14-month-old child is handed over from the mother to a relative or friend so that they can admire and hold. The child begins to fuss around the moment he/she is detached from the mother and does not calm down till the mother holds the child again. This is a common picture which is seen in our day-to-day lives. This is known as developmental separation anxiety or DSA and it begins from 10-12 months of age and persists till 24 months of age.[1] This is considered as a part of normal growth and is necessary for a healthy emotional development.[1]

By age 2, the normal development of separation anxiety has stopped for most children. The persistence of separation anxiety past this age and its subsequent interference in the child's functioning leads to separation anxiety disorder (SAD).[1] Separation Anxiety Disorder is a DSM-V (Diagnostic and Statistical Manual of Mental Disorders, 5th Ed.) diagnosis assigned to individuals who have an unusually strong fear or anxiety on separating from people they feel a strong attachment to.[2] Earlier according to DSM-IV, this condition was considered to occur only in childhood.[3] But DSM-V has recently classified SAD under its section of anxiety disorder, recognizing it's role not only in early childhood and adolescence, but across all ages in life.[3]

According to the National Comorbidity Survey Replication (NCS-R) carried out on 5692 adults in the US, 4.1% of children are affected with SAD.[3] Childhood SAD is twice more common in females as compared to males and is conversely associated with having a variety of traumatic experiences, low to high average education and maladaptive family functioning childhood.[3]

A characteristic feature seen following the onset of SAD is the presence of an excessive amount of fear or anxiety regarding separation, whether actual or imagined, from major attachment figure or home, leading to severe distress and major impairment of function.[3] Somatic symptoms such as nausea and stomach aches are more common in child patients as opposed to more emotional and cognitive symptoms seen in adult patients. Other manifestations include reluctance or refusal to go out, reluctance to being alone and repeated nightmares involving the theme of

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separation.[3]

Separation anxiety in younger children is an everyday problem faced by pediatric dentists.[1] The child is separated from the parent for appointments ranging anywhere between 10 to 60 minutes on the dental chair. Almost all dental procedures are performed with the child being fully conscious or in some cases, under conscious sedation. This differs from medical practice where the parent is with the child during initial appointment and any major procedures are performed under general anesthesia.[1] A major controversy that still remains within the pediatric dental community is whether or not to allow the parent to accompany the child during treatment.[1]

The need for this narrative review arises from the fact that not much significance has been given to this topic in literature. The present article summarizes various etiological and risk factors for separation anxiety, its pathogenesis, clinical manifestations, its diagnosis and treatment.

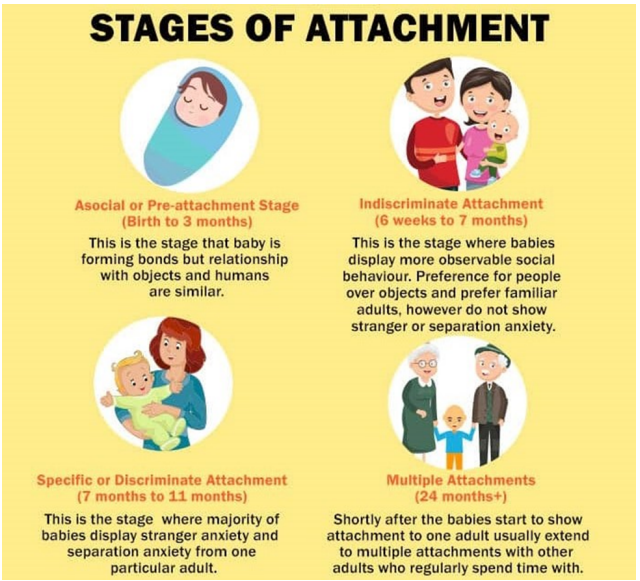

Fig. 1: Stages of attachment. (Mind Help)

2. Discussion

2.1. Risk factors

2.1.1. Attachment figure in separation anxiety

A major attachment figure or close attachment figure refers to any person to whom the child has an emotional connection to.[4] In children, attachment figures are generally the parents, often the mother, the siblings, the grandparents, or the primary caregiver/nanny.[4] On the event of being separated from the attachment figure, the child is generally inconsolable. He/she is often worried about possible harm coming to the attachment figure, refusing to part from them even for going to school or to bed.[1]

2.1.1.1. What is attachment?. Attachment has an important role in the loss of DSA.[1] Attachment is defined as a "lasting psychological connectedness between human beings" (Bowlby, 1969, P. 194), and may be considered interchangeable with concepts such as "affectional bond" and "emotional bond."[5] According to Bowlby, the infant or young child needs to experience a warm and intimate relationship with his attachment figure where both find enjoyment and satisfaction in order to grow mentally sound.[6]

2.1.1.2. Attachment Theory and Stages of Attachment. The main concept of attachment theory is that the major attachment figure who is present and responsive to the child's needs allows the child to feel secure as he/she learns that the attachment figure is dependable.[5] Based on their observations, Schaffer and Emerson outlined four distinct phases of attachment as shown in figure 1 .

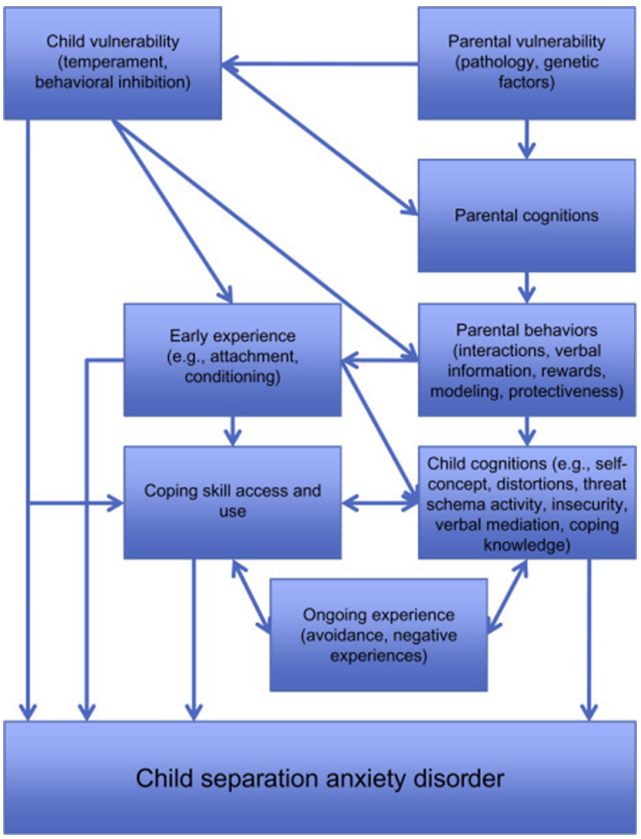

Fig. 2: Model of the development and maintenance of SAD (Schneider &Lavallee)

Table 1: Complications of separation anxiety disorder

Comorbid Mental Disorders	Patient Behaviour	Future Functioning	Family Consequences
• Specific phobia • Post-Traumatic Stress Disorder (PTSD) • Panic disorder • Generalised Anxiety Disorder (GAD) • Social Anxiety disorder • Agoraphobia • Obsessive – Compulsive Disorder (OCD) • Body Dysmorphic disorder • Personality disorders, including Dependent Personality disorder	• Social withdrawal • Apathy • Sadness • Difficulty concentrating on work, play, and school • School refusal • Poor academic achievement • Increased use of medical services	• Panic disorder (up to 75% of adults with anxiety disorders had SAD as a child and is a significant risk factor for developing adult panic disorder) • Agoraphobia • Social phobias • OCD • Bipolar disorder • Pain disorders • Depressive disorders • Alcohol dependence	• Frustration from reluctance to be separated • One child gets more undivided attention compared to other siblings • Resenting the partner for giving more attention to the child • Lower parenting self-efficacyIncreased parental anxiety seen for children with somatic symptoms

Table 2: DSM-5 Diagnosis criteria for separation anxiety disorder,June 2016

DSM-5	
Disorder Class: Anxiety Disorders	
Developmentally inappropriate and excessive fear or anxiety concerning separation from those to whom the individual is attached, as evidenced by at least three of the following:	
1.	Recurrent excessive distress when anticipating or experiencing separation from home or from major attachment figures.
2.	Persistent and excessive worry about losing major attachment figures or about possible harm to them, such as illness, injury, disasters, or death.
3.	Persistent and excessive worry about experiencing an untoward event (e.g., getting lost, being kidnapped, having an accident, becoming ill) that causes separation from a major attachment figure.
4.	Persistent reluctance or refusal to go out, away from home, to school, to work, or elsewhere because of fear of separation.
5.	Persistent and excessive fear of or reluctance about being alone or without major attachment figures at home or in other settings.
6.	Persistent reluctance or refusal to sleep away from home or to go to sleep without being near a major attachment figure.
7.	Repeated nightmares involving the theme of separation.
8.	Repeated complaints of physical symptoms (such as headaches, stomach aches, nausea, or vomiting) when separation from major attachment figures occurs or is anticipated.

2.2. Attachment styles

Attachment style refers to the particular way in which an individual relates to other people.[5] Once formed during the initial stages of life, it is a style that stays with you for life and plays an important role in how a child forms meaningful relationships with others.[5] There are four types of attachment styles, namely secure attachment, avoidant or anxious avoidant attachment, fearful avoidant or disorganized attachment and anxious or anxious ambivalent attachment.[5]

Children with secure attachment styles are more likely to respond positively to dental treatment as they use the attachment figure as a secure base to explore the world more confidently.[7]Children with anxious ambivalent attachment styles negatively respond to dental treatment as they explore less and are typically wary of strangers, even in the presence of their parents.[7]

2.2.1. Effect of parenting styles on anxiety in children

Researchers have identified four types of parenting styles. They are authoritarian (focus on obedience, punishment over discipline), authoritative (create positive relationship, enforce rules), permissive (no enforcement of rules), and uninvolved (provide little guidance, nurturing or attention). Childhood separation anxiety often arises in anxious parenting styles.[8]

In a study conducted by Aminabadi et al. to determine the impact of maternal emotional intelligence and parenting style on child anxiety and behaviour in a dental setting, emotionally intelligent mothers were found to have predominantly authoritative parenting styles.[9] This is because parents with a higher emotional intelligence (EQ) deal with more stressful situations more easily and the children develop their EQ by observing and learning from the parents.[9] Therefore, children with more emotionally intelligent mothers were found to be emotionally intelligent and displayed more adaptive behaviour during dental treatment.[9]

2.2.2. Certain temperaments

Children who display shy and timid behaviours, referred to as “behaviourally inhibited temperaments”, are more likely

Table 3: Other assessment methods for separation anxiety disorder

S.No.	Name of the assessment method	Target group	Type of assessment	Characteristics
1	Anxiety Disorders Interview Schedule for the DSM-IV, Child and Parent Version (ADIS-IV-C/P; Silverman & Albano, 1996).	Children	Diagnostic interview	• Semi-structured interview • Excellent psychometric properties • Good to excellent test-retest reliability • Convergent validity
2	Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version (KSADS-PL; Kaufman et al., 1999)	Children and adolescents	Diagnostic interview	• Semi-structured diagnostic interview • Assessing current and past episodes of psychopathology
3	Diagnostic Interview Schedule for Children, Version IV (DISC-IV; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000)	Children and adolescents	Diagnostic interview	• Highly structured, respondent-based interviews
4	Preschool Age Psychiatric Assessment (PAPA; Egger, Ascher, & Angold, 1999)	Preschool aged children (2-5 years)	Diagnostic interview	• First developmentally appropriate structured psychiatric interview • Diagnostic reliability (kappa) ranged from 0.36 to 0.79 • e test-retest intra class correlations for DSM-IV syndrome scale scores ranged from 0.56 to 0.89
5	Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Cibbers, 1997)	Children	Self report measure	• 39-item, empirically derived, multi-domain self-report measure • Excellent three-month test-retest reliability • All intra-class correlations above 0.60 • Internal consistency acceptable.
6	Separation Anxiety Assessment Scale, Parent and Child Versions (SAAS-C/P; Eisen & Schaefer, 2007)	Children	Self report measure	• Four symptom dimensions: Fear of Being Alone, Fear of Abandonment, Fear of Physical Illness, and Worry about Calamitous Events • 34-item measures specific dimensions of childhood SAD based on DSM-IV diagnostic criteria and related anxiety symptoms
7	Spence Children's Anxiety Scale (SCAS; Spence, 1997)	Children and parent	Self report measure	• Assesses anxiety by both parent and child report. • Six subscale structure • Total internal consistency of 0.92
8	Preschool Anxiety Scale (Spence, Rapee, McDonald, & Ingram, 2001)	Children (Two to six years of age)	Self report measure	• Parent self-report
9	Screen for Child Anxiety Related Emotional Disorders-Revised (SCARED-R; Muris, Merckelbach, Schmidt, & Mayer, 1999)	Children as young as age seven and adolescents	Self report measure	• Self-report questionnaire • 66-items measuring all DSM-IV anxiety disorders • Scales reliable in terms of internal consistency, and cronbach's alpha of 0.72 • Convergent and discriminant validity established
10	Fear and Avoidance Hierarchy (FAH)	Children	Self report measure	• Defines the "top 10" anxiety provoking situations for the child • Can be completed by the parent or the parent and child together • Ecologically valid method
11	Dyadic Parent-Child Interaction Coding System (DPICS; Eyberg & Robinson, 1983)	Children	Direct observational-based method	• Assessment of parent-child interactions.
12	Dyadic Parent-Child Interaction Coding System II (DPICS II; Eyberg, Bessmer, Newcomb, Edwards & Robinson, 1994)	Children	Direct observational-based method	• Three phases of a brief play interaction between the child and parent • Phase 1 (Child Directed Interaction) - the child is encouraged to lead the play while the parent attempts to create a positive, non directive environment. • Phase 2 (Parent Directed Interaction) - the parent directs the play. • Final phase (Clean-up) - the child is instructed to clean up the playroom.
13	The Composite Parental Intrusiveness Scale by Wood (2006)	Children	Questionnaire	• Favourable psychometric properties • Convergent and discriminant validity established • Multi trait-multi method matrix

to experience anxiety when they are in unfamiliar situations or with unknown persons.[10]

2.2.3. The environment surrounding the child

Separation anxiety is often caused by stressful events in life such as the loss of a loved one, death of pets, divorce of parents, change of school or home, or circumstances that lead to separation from the major attachment figure.[11] Overprotective parents as well as over-involved parents have also been implicated in the emergence of SAD amongst children.[11]

3. Theories About Separation Anxiety

The most commonly proposed theories for the development of SAD emanate from the attachment theories proposed by Sigmund Freud and John Bowlby. A schema that is functionally similar to the Learning Theory, Freud explains separation anxiety as a response to the Conditioned Stimulus (e.g., mother's absence) wherein the preceding lack of gratification materialize as release of anxiety for the infant.[12] Bowlby's contribution to explanation of SAD is based off his theory of attachment. According to Bowlby, all infants instinctually form attachment with their caregivers, albeit with minor individual differences. The attachment style that is most germane to development of SAD is the anxious-ambivalent attachment style wherein the child feels anxious and distressed on being separated from their caregiver or if the caregiver is absent. These children would not feel reassured until they were reunited with their caregiver, similar to SAD.[6]

4. Etiological Factors

According to the model given by Schneider and Lavallee, there are two primary pathways for development of SAD: early vulnerability factors (e.g., behavioral inhibition, attachment) and cognitive factors (pattern of cognition developed within the family context).[13] Figure 2 given explains this model.

It has also been hypothesized by Donald Klein that SAD and Panic Disorder have similar origins wherein both of disorders are characterized by the reduced threshold for the induction of biological control mechanism that was postulated by Bowlby. This leads to repeated triggering by 'false alarms', without any real risk of danger or separation, activate the alarm mechanism.[13] Klein expressed the similarities between the two disorders in his suffocation false alarm mechanism wherein he suggested that consistent respiratory abnormalities are seen in panic patients is due to hypersensitive, medullary CO_2 detectors, which result in 'false alarm' feeling of suffocation.[13]

For neural basis of SAD, it has been observed in a study that increased amygdala activation to face fears was associated with the presence of higher separation anxiety symptoms. Anxiety disorders in children is also associated with defects in ventrolateral and dorsomedial areas of the prefrontal cortex.[14]

Signs and Symptoms Seen in Separation Anxiety

The manifestation of various signs and symptoms of SAD vary according to the influence of differences in activities or environments of the individual. Typical behaviors shown are:[4]

1. Distress or anxiety in anticipation of caregiver or attachment figure leaving
2. Excessive worry about something bad happening to the attachment figure (e.g., untimely death or being unable to return)
3. Fear of being kidnapped or becoming lost
4. Fear of being away from the caregiver such as going to school or sleeping away from the attachment figure
5. Fear of being left home alone
6. Avoidance of being alone
7. Refusal to go to school
8. Bedwetting
9. Nightmares
10. Poor concentration
11. Poor academic performance
12. Poor social interactions or isolation
13. Irritability (a commonly misinterpreted symptom that is associated with anxiety disorders and present in up to 90% of generalized anxiety disorder patients)

The various comorbid somatic symptoms are also shown by a significant population of children and adults with SAD include:[4]

1. Headaches
2. Asthma
3. Stomach discomfort
4. Nausea
5. Vomiting
6. Chest pain
7. Tachycardia
8. Shortness of breath
9. Dizziness

5. Prognosis

SAD is associated with the increased risk for the child to develop other anxiety and mood disorders, which include panic disorder, agoraphobia, and OCD.[15] There is also an increased risk for developing depression and substance abuse.[15] Early intervention is necessary to prevent the patient from developing other comorbid mental disorders for SAD patient in adulthood.[4]

6. Complications

According to DSM-5, persistence of symptoms of SAD from childhood presents as Childhood-onset Adult

Separation Disorder (C-ASAD). In a study, about 20.7% patients with anxiety and mood disorders met the criteria of childhood onset- SAD.[16] ASAD is associated with higher likelihood of being unmarried or divorced, unemployment, lower education and disability compared to their peers.[16] Various complications listed in Table 1 include:[15]

Diagnosis

It is important to diagnose separation anxiety disorder as it causes distress for both the child and caregiver, which includes social distress, sleep problems (nightmares, bed-wetting), a variety of physical symptoms, poor academic performance and social isolation.[17] If left untreated, separation anxiety disorder can further lead to other psychological disorders in adulthood.[17]

Diagnosis for separation anxiety disorder is dependent upon determining whether the child is simply in a normal stage of development, or if the child fulfills any criteria for clinical diagnosis.[18] Alongside, it is necessary to rule out any medical condition that pertains to the child's symptoms before referring to any mental health professional.[18]

According to DSM-5, the duration of separation anxiety disorder must persist for at least 4 weeks and must present itself before a person is 18 years of age.[19] Table 2 lists out the diagnostic criteria for separation anxiety disorder by DSM-5.[19]

The various assessment methods listed in table 3 make use of questionnaires, self-reports, interviews and observational methods to assess the anxiety levels in children and adolescents.[11]

7. Differential Diagnosis

The accurate diagnosis of anxiety-related conditions is a precarious task due to the overlapping symptoms. Therefore, identification of primary stressor is imperative. In case of SAD, the primary stressor for the child is being away from his/her parents or caregiver. The various differential diagnoses for SAD on basis of the symptoms:[4]

1. Anxiety Symptoms:
   (a) Obsessive- Compulsive Disorder (OCD)
   (b) Post-Traumatic Stress Disorder (PTSD)
   (c) Bereavement
2. Difficulty with concentration and decision making:
   (a) Depression
   (b) Attention-Deficit Hyperactivity Disorder (ADHD)
   (c) Learning disorders
3. Behavioral issues:
   (a) Depression
   (b) Somatic preoccupation
   (c) Substance abuse
   (d) OCD
   (e) Eating disorders (e.g., anorexia nervosa, anorexia bulimia, etc.)
   (f) Conduct Disorder
4. Personality disorders:
   (a) Dependent personality disorder
   (b) Borderline personality disorder
5. Somatic complaints:
   (a) Appendicitis
   (b) Inflammatory bowel disease
   (c) Migraines
   (d) Cardiac arrhythmias
   (e) Respiratory issues (e.g., asthma)
   (f) Thyroid disease
   (g) Substance use

8. Treatment

Regardless of the cause of anxiety, the treatment modalities for these disorders can be either psychotherapy or counseling, medication, or a combination of both. For young children with anxiety, being exposed to the fear paired with the right support and coping skills is the most effective way for them to learn how to overcome the fear," Nasamran says.[20]

The separation anxiety disorder of mild severity can be treated with only psychotherapy or counseling. For children who suffer emotional problems and have not improved with only counseling sessions, a combination of approaches is preferred. These combination approaches include psychotherapy, medication, and parent counseling.[21]

8.1. Psychotherapy

8.1.1. Behavioural modification therapy

Behavioral modification therapy is the main intervening modality that addresses the behavioral effects of separation anxiety disorder. This therapy is less burdensome as the child is frequently awarded and appreciated for small victories. The application of this therapy involves the therapist giving parenting tips to the child's caregivers, frequently meeting the child, and directing the child's teachers on how to ease the child's anxiety.[21]

8.1.2. Cognitive behaviour therapy

Cognitive behavior therapy is an important tool in reducing the levels of anxiety in this disorder. It helps the child assess their thinking processes, enhances their problem-solving ability, and helps them become positive in life.It is considered a well-established modality of treatment.[21] Meta-analyses show that approximately 60% of youth show a reduction in symptoms of anxiety after undergoing cognitive behavior therapy.[22] During CBT, the therapist teaches the child how to recognize the symptoms of anxiety during

separation and explains coping strategies to deal with them followed by appreciation which is received when the child tackles the situation well. The CBT sessions can be attended by the parent as well.[20]Cognitive behavior therapy employs both cognitive restructuring and exposure techniques to lessen the symptoms of anxiety. Additionally, CBT often includes breathing retraining and progressive muscle relaxation techniques.[11]

The Coping Cat program is a popular application of CBT for youth with anxiety disorders like separation anxiety disorder. The program incorporates cognitive restructuring and relaxation training followed by gradual exposure to anxiety-provoking stimuli alongside inculcation of coping skills learned in the previous session. The Coping Cat program was assessed in a randomized controlled trial including 47 children between the ages of eight and thirteen. Results showed that children undergoing cognitive behavior therapy had significantly better outcomes than those assigned to the waitlist.[11]

Family involvement in the management of SAD is recommended because of the parent's essential role in the maintenance of their child's separation fears.[11]

The FRIENDS program is a 10-session cognitive behaviour therapy for children with anxiety disorders such as SAD. The program includes all of the important components such as cognitive restructuring and systematic exposure along with family involvement. Parents are motivated to perform the FRIENDS skills with their children and provide positive reinforcement on a day-to-day basis. In addition, peer involvement is also witnessed and interpersonal support through a continued significance in forming friendships, talking to friends about difficult times, and learning from peers' experiences.[11]

The FRIENDS acronym stands for: F—Feeling worried?; R—Relax and feel good; I—Inner thoughts; E—Explore plans, N—Nice work so reward yourself; D—Don't forget to practice; and S—Stay calm, you know how to cope now. This program was systematically evaluated in an RCT which included seventy-one children aged six to ten who met diagnostic criteria for GAD, SAD, or Social Phobia. Results showed that 69% of children versus 6% of controls showed a decline in symptoms of anxiety.[11]

Both parent and child participation is advised for SAD treatment. A study by Eisen and colleaguesexamined six families who met the diagnostic criteria for SAD. The treatment modality included ten parent-only sessions and incorporated cognitive-behavioural techniques such as psychoeducation, in-session practice, imaginable exposure, and homework assignments. Results showed, five of the six child participants no longer met diagnostic criteria for SAD, and the sixth child was assigned a subclinical SAD diagnosis.[11]

8.1.3. Parent-child interaction therapy (PCIT)

During PCIT sessions, therapists enlighten parents on certain therapeutic skills they can use with their children to support them in their everyday routines. Under the guidance of the therapist, parents themselves become their child's therapist to ensure they are supporting them both in and outside of their therapy sessions.[20]

Parents learn how to develop a strong and secure bond with their kids, reinforce relevant behaviour and coping skills, and build children's self-esteem. Research shows that PCIT, along with its separation anxiety-adapted form — CALM (Coaching Approach Behaviour and Leading by Modelling) — is effective for children ages 2 to 7 years old.[20]

8.2. Medications

If psychotherapy fails or if the children's symptoms are so severe that they are nearly incapacitating, medication is considered to be the next line of treatment. Although there are no medications specifically pertaining to treating separation anxiety disorder, selective serotonin reuptake inhibitors (SSRIs) have been found to be effective.[21]

SSRIs (fluoxetine (Prozac), fluvoxamine (Luvox) etc.) are medications that work by selectively inhibiting the uptake of the neurotransmitter serotonin in the brain which occurs at the synapse.[21]

Medications, when SSRIs are poorly tolerated, include tricyclic antidepressants (TCAs) and benzodiazepines. The mechanism of action of TCAs is by increasing the level of norepinephrine in the brain synapses. Some commercially available tricyclic antidepressants include amitriptyline (Elavil), desipramine (Norpramin), and nortriptyline (Aventyl, Pamelor).[21]

Benzodiazepines tend to be the least-prescribed group of medications for the treatment of separation anxiety disorder. They work by increasing the activity of Calming chemicals in the brain. Benzodiazepines include clonazepam (Klonopin), lorazepam (Ativan), and alprazolam (Xanax). These medications tend to only be used as a last resort when the child has had unsuccessful trials of the other two classes of medications or suffers from incapacitating symptoms of anxiety as the child may show great levels of dependency on this class of drugs.[21]

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10. Conflict of Interests

Authors state no conflict of interest.

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