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## The Risks and Benefits of Selective Serotonin Reuptake Inhibitors and the Effect of Parent-Child Compliance on Medication Teaching in Pediatric Anxiety Disorders

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THE RISKS AND BENEFITS OF SELECTIVE SEROTONIN REUPTAKE  
INHIBITORS AND THE EFFECT OF PARENT-CHILD COMPLIANCE ON  
MEDICATION TEACHING IN PEDIATRIC ANXIETY DISORDERS

by

SABIHA NIZAM

A thesis submitted in partial fulfillment of the requirements  
for the Honors in the Major Program in Nursing  
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## **ABSTRACT**

Pediatric anxiety disorders characterized as Generalized, Separation, and Social Anxiety Disorders, are chronic debilitating conditions that leave children feeling tense and isolated, both physically and emotionally. Selective serotonin reuptake inhibitors (SSRIs) are a classification of antidepressants that can be prescribed to children diagnosed with these disorders. SSRIs have been shown to be effective in treating anxiety disorders in children. The purpose of this literature review was to examine and determine if there are more risks or benefits associated with SSRIs, as well as evaluate teaching and education regarding anxiety disorder medication compliance in both children and parents. A secondary purpose of this research was to provide recommendations in nursing practice to allow children to feel more involved in their medical regimen. The following databases were used for the search: CINAHL, Academic Search Premier, and Web of Science. Key terms used in the search include but are not limited to: child\* and anxiety, not autism, and selective serotonin reuptake inhibitors, OR SSRI\*, OR adolescen\*, not med\*, pediatric\*, OR side effects. The results suggest that the benefits of SSRI therapy in children with anxiety disorder, when taken on a regularly scheduled basis, outweigh the risks, however more research aimed at compliance with SSRI therapy in children and parents is necessary. Further research analyzing children with anxiety disorders is needed to assess SSRI usage based specifically on their developmental age, and the inclusion of appropriate teaching and explanation related to their diagnoses to identifying stressors that can include behavioral therapy as well.

## **DEDICATION**

To my mother, father, brother and sister for always striving me to pursue my dreams and being the best I can be.

To my friends for their unconditional support and love throughout all of my endeavors.

To all the children who will benefit from my research.

I would like to thank everyone who has been a part of this journey and motivated me to never give up.

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To the faculty of the College of Nursing-I wish I could begin to thank each and every one of you who has been a part of my journey throughout nursing school. You have taught me more than I thought I was capable of learning. You all have done above and beyond what any faculty could do to try to provide the best education to students. I will leave this journey thankful, dedicated, compassionate, motivated, and ready to be the best nurse I can be. Thank you so much for your contributions and I hope to reflect everything I have learned in practice.

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## INTRODUCTION

Anxiety disorders, including Generalized Anxiety Disorder (GAD), Panic Disorder, and Social Phobia are the most common reasons children seek psychiatric medical attention and are the most common mental health specialty for outpatient treatment. Separation anxiety and social phobia are the most often diagnosed anxiety disorders in the pediatric population. Children frequently suffer from anxiety in their lives, which can impair family, social, academic, behavioral, and emotional functioning. Anxiety is defined as “apprehension, tension, or uneasiness from anticipation of danger” (Vollmer, 2003, p. 27). The anxiety disorders are chronic debilitating conditions that leave children feeling anxious, tense, and fearful. Pharmacotherapy can be an effective means to treat and reduce symptoms of anxiety disorders in children. The American Academy of Child and Adolescent Psychiatry, support the use of SSRIs in the treatment of childhood anxiety disorders.

Current treatment guidelines for anxiety in children recommend that first line treatment for children with generalized anxiety disorders should consist of an antidepressant therapy with selective serotonin reuptake inhibitors or SSRIs or selective serotonin norepinephrine inhibitors or SNRIs (Katzman, 2009). An SSRI is an antidepressant that works to block the reuptake of the neurotransmitter serotonin in the brain. Serotonin is a neurotransmitter that plays a role in mood, happiness, and anxiety. Two opposing theories explain the role of serotonin dysfunction: serotonin excess where serotonin is anxiogenic and serotonin deficit where serotonin is anxiolytic (Katzman, 2009). In a randomized control trial that was conducted, seven placebo-

controlled trials demonstrated SSRIs to be more effective than pill placebo for pediatric anxiety disorders (Sakolsky & Birmanher, 2008).

Side effects of SSRIs include gastric upset, insomnia, and headache. Other severe side effects include serotonin syndrome and increased risk of bleeding (Sakolsky & Birmanher, 2008). Adverse effects of SSRIs that have been reported in children include increased bleeding and serotonin syndrome (Hammerness, Vivas, & Geller, 2006). The use of an SSRI with an NSAID as well as the combination of an SSRI and a low-dose aspirin increases the risk of upper GI bleeding (Dalton, Johansen, Mellemkjoer, Norgard, Sorensen, & Olsen, 2003). Side effects and adverse reactions can provoke increased anxiety in children thus adequate education and teaching about medication usage to parents and children can be extremely beneficial. This can be accomplished by using techniques that are specific to the child so they can feel more involved in their diagnosis.

Health care providers and nurses should be forewarned of the adverse effects and the reported cases of children experiencing those effects. Nurses should be encouraged to provide sufficient teaching to children and parents regarding medications. Educating the parents and children of the symptoms, treatments, risks, as well as the consequences of not seeking treatment is essential. The FDA has warned clinicians when prescribing antidepressant medications to monitor adolescents for agitation, depression, and suicidality. Out of 100 children, one to three will show suicidal behavior. The FDA guidelines also recommend that children and adolescents starting treatment with an antidepressant be seen every week for the first 4 weeks, every other week for the next 4 weeks, and then again at 12 weeks (Sakolsky & Birmaher, 2008). With this said, clinicians, parents, children, and other health care providers should be taught the risks and



benefits of SSRIs. Long-term use of SSRIs in children regarding the risks and benefits have not been studied (n.a., 2010).

Health care providers play a pivotal role in treating and providing education and teaching to children and parents regarding medication use for anxiety disorders. In the healthcare setting, nurses are often the first to perform an assessment and the last ones to provide discharge instructions and education to individuals and their family members. It is crucial to have nurses involved in education and teaching SSRI use in pediatric anxiety disorders, with emphasis on the specific side effects and adverse effects related to the medications use.

## **BACKGROUND**

Anxiety disorders have an occurrence rate varying from 6% to 20% (Sakolsky & Birmaher, 2008). Older studies suggest that 15-23% of children have some type of anxiety disorder (Vollmer, 2003). Several studies reveal that girls far more frequently are diagnosed with an anxiety disorder than boys (Sakolsky & Birmaher, 2008). The more prevalent anxiety disorders are important to consider when discussing rates and commonalities. Children with separation anxiety disorder experience a great deal of distress when separated from home or a caregiver. On the other hand, children with generalized anxiety disorder have a constant worry about situations and events. Children with generalized anxiety disorder experience a constant worry about schoolwork, social interactions, world events, and family (Connolly & Bernstein, 2007). Lastly, children with social anxiety disorder have a persistent distress regarding social situations because they fear embarrassment (Sakolsky & Birmaher, 2008). Children with social anxiety have a constant fear of being embarrassed in social settings such as classrooms, restaurants, and extracurricular activities (Connolly & Bernstein, 2007). Separation anxiety disorder and specific phobia are more common in children 6-9 years of age, while generalized anxiety disorder is more widespread in adolescence and middle childhood (Vollmer, 2003).

The symptoms of anxiety disorders greatly differ and can often be distinguished by specific characteristics from child to child. Symptoms of separation anxiety disorder include but are not limited to repeated nightmares of being separated, fear of being away from home or caretaker, and repeated symptoms of headaches, nausea, and vomiting when separated. On the contrary, symptoms of children with generalized anxiety disorder include constant worry

associated with symptoms such as restlessness, disturbance in sleep patterns, and irritability.

Symptoms of social anxiety disorder consist of excessive fear and avoidance of situation that is feared (Volmer, 2003).

SSRIs are commonly well-tolerated for children and adolescents with anxiety disorders (Sakolsky & Birmaher, 2008). SSRIs are treatment tools for anxiety disorders for children however the risks and benefits of SSRIs should be carefully looked upon child to child (Southammaksane & Schmitz, 2015). Examples of some SSRIs that have been reviewed as first-line treatment include escitalopram, paroxetine, and sertraline (n.a., 2010). Children with anxiety oftentimes have parents with anxiety disorders as well thus, parents seeking their own medical treatment regarding anxiety disorders will increase the likelihood of a child responding to treatment (Sakolsky & Birmaher, 2008).

## **PROBLEM**

Children and their parents oftentimes are not compliant with medications and therefore do not experience the full desired effect. One area of concern that leaves parents flustered is the duration of medication treatment, specifically medication side effects (Leonard, 2007). Side effects are not often severe, however serotonin syndrome and serotonin withdrawal have been reported and are more significant cases of adverse effects. Currently there is not an extensive amount of research specifically focusing on knowledge of SSRI usage in children and parents. However, multiple studies have shown the use of SSRIs effectiveness in the treatment of anxiety disorders. SSRIs have been shown to be well tolerated and thus generally prescribed as first-line treatment of anxiety disorders in children (Baldwin, Anderson, Nutt, Bandelow, Bond, Davidson, Boer, Fineberg, Knapp, Scott, & Wittchen, 2005). Therefore education and teaching aimed at children and parents regarding side effects in relation to compliance with medication treatment need to be explored more in depth.

## **PURPOSE**

The purpose of this literature review was to examine the risks and benefits associated with SSRIs to determine if there are more risks or benefits with SSRI usage and evaluate teaching and education regarding anxiety disorder medication compliance in both children and parents. A secondary purpose of this research is to provide nursing recommendations for children that can allow them to feel more involved and comfortable in their treatment regimen.

## **METHODS**

A literature review was conducted using the following databases: (CINAHL) Plus with Full text, Medline-EbscoHost, Google Scholar, PsycINFO, Academic Search Premier, and Web of Science. Key search terms included, child\* and anxiety, not autism, and selective serotonin reuptake inhibitors, OR SSRI\*, OR adolescen\*. Other search terms used include anxiety disorder in child\* and adol\*, not med\*, teach\* or educate\*, and treatment\*, education OR teaching OR counseling, pediatric\*, OR adverse, OR side effects, OR drug effects, OR effective. The results were limited to the past ten years with an exception to classic references related to the diagnosis and treatment of anxiety disorder in children. The exceptions included population-based cohort studies and research articles specifically focused on the adverse effects associated with SSRIs. Additional inclusion criteria included articles written in the English language and randomized controlled trials. The literature will be reviewed according to side effects and child/parent compliance on medication teaching.

A total of 266 articles were potentially related articles after searching through databases. A total of 75 articles were found related to the topic. This number was narrowed to 40 quantitative and qualitative articles for this review. Of this, 17 articles were quantitative and 23 articles were qualitative. The articles reviewed focused on SSRI and antidepressant therapy in children, as well as adherence and compliance of difficult treatment regimens. Review of current evidence and research regarding childhood anxiety disorders and the risks and benefits of SSRIs yielded towards the benefits far outweighing the risks. Originally hundreds of articles appeared in the search and articles were excluded due to duplication within the search results and reference

lists. Further articles were excluded due to lack of relevance of subject matter. To ensure studies met research criteria, articles of most interest were on childhood anxiety disorders and compliance on SSRI drug therapy. Citations from each article were analyzed and articles that pertained to the topic were used for analysis. The extracted data was compiled into tables that synthesize the relationship between the risks and benefits of SSRIs and compliance with difficult treatment regimen. Further information and articles regarding nursing recommendations in allowing children to feel more involved in their treatment was placed into a table format based on the obtained data.

## **RESULTS**

Anxiety disorders are very common in the pediatric population and leave children tense and fearful. Pharmacotherapy and adequate medication teaching to parents and children can provide beneficial effects to children such as further changing their perspective regarding their disorder in a positive manner. Allowing the child to feel involved in their care can lead to less anxiety for them as well as their parents. Since SSRIs are the first line of treatment for pediatric anxiety disorders there lies risks and benefits of the usage of them. There are extensive amounts of research regarding the risks and benefits of SSRIs. However, there is less research on compliance with drug therapy used in children with anxiety disorders. The following research has been pulled from various databases to determine if there are more benefits or risks associated with SSRIs and compliance with drug therapy used in children with anxiety disorders.

A multimodal approach is used commonly in treating anxiety disorders as this method incorporates pharmacotherapy and education to both parents and children, behavioral therapy, family therapy, and school personnel to just name a few. An important aspect to assess for when looking at children is the history of onset and development of anxiety symptoms as well as their medical and social history (Vollmer, 2003). Nurses are the first ones to perform an assessment on a child and should therefore be aware of signs and symptoms of anxiety disorders.

### **The benefits of SSRIs**

SSRIs have been the choice of medication for anxiety disorders in children and have been well tolerated (n.a., 2007). It has been suggested that SSRIs are effective for treatment in generalized anxiety disorders, separation anxiety disorders, and/or social phobia in children and



adolescents (da Costa, Morais, Zaneta, Turkiewicz, Neto, Morikawa, Rodrigues, Labbadia, & Asbahr, 2013). SSRIs are the most commonly prescribed antidepressants for anxiety disorders because of their favorable side effects and the benefit of treating co-morbid depression (Hoffman & Mathew, 2008).

It is important to treat anxiety disorders as early as possible as delaying treatment can lead to mood disorders in late adolescence into adulthood (Wehry & Strawn, 2014). The strongest evidence suggests the use of SSRIs and emphasizes the importance of starting treatment early to prevent problems in adulthood. A child with anxiety disorders places them at risk for later anxiety disorders, mood disorders, substance abuse disorders, and uncontrollable behavior if not treated early (Mohatt, Bennett, & Walkup, 2014). SSRIs require less initial medical evaluation, medical monitoring while on the medication, and have fewer side effects (Keeton, Kolos, & Walkup, 2009). They have mostly replaced tricyclic antidepressants because of the safety concerns and monitoring of cardiovascular effects that were associated with tricyclic antidepressants (Leonard, 2007). SSRIs have replaced benzodiazepines as well (Allgulander, Florea, Huusom, 2006). Some types of SSRIs that are currently being used in the United States include escitalopram, fluoxetine, paroxetine, and sertraline.

Sertraline which was studied in the Child/Adolescent Anxiety Multimodal Study (CAMS) with a pill placebo, sertraline alone, Cognitive-Behavioral Therapy (CBT), and the combination of CBT and sertraline showed that it was well tolerated and there were no significant adverse effects noted. Fluvoxamine was studied by the Research Unit on Pediatric Psychopharmacology Anxiety Study Group in a double-blind placebo-controlled trial which suggested that adverse effects and side effects such as abdominal pain and behavioral

disinhibition were minimal (Mohatt, et. al.). There are several variables that should be considered when starting an SSRI treatment that can potentially reduce the risks of the antidepressant. Those variables include the child's age, weight, neurologic status, and family history. Side effects are reported but are usually mild and are often dependent on the dose taken. Cerebrovascular adverse reactions have very low rates when compared to SSRIs (Hammerness, Vivas, Geller, 2006). It is important to note that adverse reactions and side effects can occur but the likelihood of them occurring with an SSRI is low. According to the FDA (2005), no completed suicides have been attributable to the use of SSRIs in children.

Although the risk of suicidal ideation is discussed with SSRIs, the benefits seem to outweigh the risks (Southammakosane & Schmitz, 2015). According to March and Vitiello (2009) there has not been any completed suicide among 4,000 participants of the study that were treated in randomized clinical trials. The way an SSRI is prescribed regarding dosage is crucial when considering the potential risks and benefits. Titration should be used because this could also increase the benefits of the medication. Dosages should be started off low and gradually increased until symptoms are relieved. It is important to note that children may experience somatic symptoms prior to treatment but more importantly this decreases with treatment. In a systematic review and meta-analysis of prospective randomized parallel-group controlled trials, nine trials of 1,673 participants and six medications demonstrated efficacy and no increased risk was observed for nausea/abdominal symptoms, discontinuation as a result of an adverse reaction, or suicidality. The results of the study suggests that SSRIs/SNRIs are superior relative to placebo (Strawn, Welge, Wehry, Keeshin, & Rynn, 2015).

First-line agents such as SSRIs have been studied numerous times in double-blinded studies and placebo-controlled trials in adults and children (n.a., 2010). For example in a multicenter randomized double-blind, placebo-controlled trial that was conducted, paroxetine greatly increased the number of responders compared to a placebo. The study concluded that paroxetine produces few severe side effects and is the choice of medication for children with social anxiety disorder (Manassis, 2005). Fluoxetine is also recommended as the first choice of medication for children and adolescence with anxiety disorders. According to the FDA, two SSRIs have been approved for children with anxiety disorders: escitalopram and fluoxetine (Rappaport, Kulick, & Phelps, 2013). Fluoxetine has an advantage over other SSRIs because of its long half-life (Kitts & Goldman, 2012).

A number of randomized controlled trials conducted between 1988 and 2006 concluded that the benefits of antidepressants outweighed the risks to children with anxiety disorders (Rappaport, et. al.). It is recommended that a child stay on antidepressants for at least a year so they can experience a full cycle of usual situations that provoke anxiety. It is advised not to discontinue the medication especially during stressful events in a child's life (n.a., 2010). Following the prescribed regimen can greatly increase the benefits of taking the medication.

Even though practitioners need to be aware of the possibility of suicide in children whom they are prescribing SSRIs, concerns of this are outweighed by the positive effects of the medication. The positive effects include a decrease in the burden of the disorder and reduction in symptoms (Southammakosane & Schmitz, 2015). In a double-blind, randomized, placebo controlled trial, escitalopram was well tolerated and there was no evidence of increased suicide in this group when compared to the placebo group (Isolan, Pheula, Salum, Oswald, Rohde, &

Manfro, 2007). Based on randomized placebo-controlled trials conducted on fluoxetine, fluvoxamine, paroxetine, and sertraline the results indicated that antidepressants appear to be the greatest benefit for pediatric anxiety disorders. In a randomized, placebo-controlled trial that studied the effect of venlafaxine to an SSRI, venlafaxine showed to have more adverse effects such as an increase in blood pressure and heart rate (Sakolsky & Birmaher, 2008).

The Child/Adolescent Anxiety Multimodal Study (CAMS) was the largest randomized controlled, multi-site comparative trial conducted on cognitive-behavioral therapy (CBT), sertraline, their combination, and a placebo in children diagnosed with separation, generalized, and social anxiety disorders (Piacentini, Bennett, Compton, Kendall, Birmaher, Albano, March, Sherrill, Sakolsky, Ginsburg, Rynn, Bergman, Gosch, Waslick, Iyengar, McCracken, & Walkup, 2014). The study included evaluations of which included assessments of adverse reactions, harm-related adverse reactions, physical symptoms, adherence of medication, and lastly clinical improvement. These particular assessments were used to gather more information from the child and families and also clinicians themselves. This study leads to the importance of frequently monitoring baseline physical and psychiatric symptoms, adverse reactions, and adjusting medication treatment according to symptoms (Rynn, Walkup, Compton, Sakolsky, Sherrill, Shen, Kendall, McCracken, Albano, Piacentini, Riddle, Keeton, Waslick, Chrisman, Iyengar, March, & Birmaher, 2015). The results of this study suggest that response to both CBT and SSRIs are efficacious and were associated with minimal adverse effects (Piacentini, et. al.).

An open-label trial conducted on children and adolescents with social anxiety disorder included sertraline, citalopram combined with psychoeducation interventions, and a randomized, 16-week, double-blind, placebo-controlled trial with paroxetine suggested that SSRIs are an

effective choice of medication for anxiety disorders. In the open-label trial of escitalopram on children and adolescents with social anxiety disorder, the study demonstrated no significant changes in weight or vital signs. Also no participant developed self-harm behavior or suicidal ideation (Isolan, et. al.).

### **The risks of SSRIs**

Prescribing medications can be difficult when it comes to outweighing the risks and benefits especially in the case for children. Parents are reluctant to give medication to their children when side effects and risks of suicide are involved. Prescribing rates of SSRIs have increased despite the concerns of potential adverse events (March & Vitiello, 2009). Although the risk of suicidal behavior is low, the fact that it is consistently brought up in a number of studies raises a concern (Wohlfarth, Zwieten, Lekkerkerker, Gispen-de Wied, Ruis, Elferink, & Storosum, 2006). All SSRIs are known to have similar mechanisms in their action, however they differ in chemical structure and the way they are metabolized, absorbed, excreted, and distributed in the body. Another area to consider is how children are continuously changing physiologically thus altering the way a drug is metabolized and its adverse effects (Czaja, Valuck, & Anderson, 2013).

Suicide is the third leading cause of death in individuals from the age of 10 to 19, making it a serious health concern. Suicidal thoughts and behaviors are the most troublesome for children, families, and clinicians (Rynn, et. al.). Although the risk of suicide is low, it is still an important health issue because of the widespread use of SSRIs in the country (Fergusson, Doucette, Glass, Shapiro, Healy, Hebert, & Hutton, 2005). Increased risk of suicide, depression,

and development of other anxiety disorders has been linked with social anxiety disorder in adolescents (Isolan, et. al.). There is an increased risk of suicidal ideation as well as suicide attempts in children who are prescribed antidepressants when compared to placebo (Leonard, 2007). The UK Department of Health alerted the public of a 1.5-3.0 fold increased risk of suicidal ideation and harm to self in children taking paroxetine (Hammerness, et. al.). The 9-year cohort study that was conducted from British Columbia on antidepressants and the association of an increased risk of suicidality in children, supports the decision of the FDA to include the black box warning on all antidepressants regarding potential risk of increased suicidal behavior in children and adolescents (Schneeweiss, Patrick, Soloman, Dormuth, Miller, Mehta, Lee, & Wang, 2010). The FDA also recommends weekly appointments with the child for the first 4 weeks and then going to every other week for 4 weeks (Rynn, Puliafico, Heleniak, Rikhi, Ghalib, Vidair, 2011).

The FDA provides the public with safety measures which include medication guides that uses a practical, reader-friendly approach to address the risk of suicidality (Barry & Busch, 2010). Because of the black box warning issued back in 2004, clinicians have decreased the number of antidepressants prescribed to children and adolescents in Nebraska which is consistent with the decrease in the national average. Continuing education and increasing comfort levels is important for both the child and clinician as a fair amount of children and families have refused their medications after the black box warning (Bhatia, Rezac, Vitiello, Sitorius, Buehler, & Kratochvil, 2008).

Other adverse effects may be seen with SSRIs. Adverse effects such as serotonin syndrome have been reported in children taking these antidepressants. Reported cases of

extrapyramidal symptoms, tics, and myoclonus have been documented in children taking SSRIs (Hammerness, et. al.). Other adverse effects include nausea, sweating, sexual dysfunction, etc. (n.a, 2010). Some common side effects include headache, insomnia, GI upset, etc. Children taking these antidepressants should be monitored for sleep problems, irritability, increased thoughts of suicide, and akathisia (Sakolsky & Birmaher, 2008). The two most common categories of adverse effects are physical (headaches, GI problems) and psychiatric symptoms (agitation, suicidal ideation) (Strawn, et. al.).

Another issue with SSRIs is that abrupt discontinuation can lead to withdrawal symptoms (Katzman, 2009). Abrupt discontinuation can cause children to experience dizziness, nausea, headache, and fatigue (Southammakosane & Schmitz, 2015). A Cochrane review of 15 SSRI pediatric anxiety clinical trials found that the children and adolescents experienced increased irritability, hostility, insomnia, and restlessness as compared to the pill placebo and that these adverse reactions often lead to discontinuation (Rynn, et. al.).

Therefore health care providers should try to avoid this by reducing the dosage of the medication over time. In a randomized double-blinded study that was conducted, the most common adverse reactions after giving paroxetine were insomnia, decreased appetite, and vomiting. Five out of the hundred twenty-five responder's experienced suicidal thoughts or self-harmed compared to non in the placebo (Manassis, 2005). Even though the numbers stand small, they still contribute to the whole and because of these effects parents worry about giving their children SSRIs.

Side effects of SSRIs should be particularly monitored during the first 10 to 42 days of treatment (Lovrin, 2009). SSRIs increase the risk of upper GI bleeding and this can also occur

with the concurrent use of an NSAID (Dalton, Johansen, Mellemkjoer, Norgard, Sorensen, & Olsen, 2003). Some serious side effects of SSRIs are mania, seizures, hyponatremia, and arrhythmias. Less serious side effects include dry mouth, sweating, diarrhea, etc. (Rappaport, et. al.). Headaches, stomach aches, and behavioral problems can arise frequently when taking SSRIs and should be looked upon specifically. The CAMS study revealed that children and adolescents experienced difficulty sleeping more often than when compared to the pill placebo. The study also revealed that children reported more frequent headaches than compared to the pill placebo and that children showed more symptoms of psychiatric adverse reactions (Rynn, et. al.). SSRIs can also slow growth causing a decrease in growth hormone levels so therefore it is extremely important to monitor the child's height, weight, and physical status. Other serious adverse reactions that need to be aware of include behavioral activation and mania (Keeton, et. al.).

The half-life of a drug also influences the risk of adverse effects. Children and parents should be cautioned about this and how missing doses can cause harm. Fluoxetine with the longest medication half-life reveals a smaller risk of suicidal ideation when compared to venlafaxine and fluvoxamine, which are medications that have shorter half-lives (Smith, 2009). In August 2011, the FDA also released a caution to the public about an increased risk of cardiac adverse reactions with higher doses of citalopram. With this said, citalopram has not been approved by the FDA for use in children under the age of 18 even though it is still prescribed in the pediatric population (Czaja, et. al.).



## **Parent-child compliance on treatment regimen**

Parents can become sensitive when it comes to their child's diagnosis and prescribed medications. Many questions arise such as side effects, adverse effects, duration of treatment, or other possible treatments. Generally speaking it is important to start off on low dosages of SSRIs and concurrently review the side effects, treatment response, and adjusting dosages/treatment as needed (Keetonm, et. al.). It is imperative to help parents understand their child's stressors and sadness because this can typically strengthen the ability to support their child and possibly reduce anxiety and depression in the future. Some protective factors that can help reduce a child's stressor(s) include self-esteem and confidence, family support, hopefulness, goal-directed thinking, and positive family relationship (Kitts & Goldman, 2012). This is where determining the risks and benefits come into play when prescribing an SSRI to a child since parents prefer treatments when the benefits outweigh the risks. SSRIs should be used in the treatment plan of pediatric anxiety disorders as well as family education specifically focusing on the side effects of drugs (Lovrin, 2009).

Some common reasons that a family may need to consult with a mental health clinician include questions regarding a diagnosis, safety concerns such as suicidal ideation, and concerns regarding adverse reactions of the medication (Kitts & Goldman, 2012). Nurses and practitioners need to be aware of explaining the risks and benefits of each treatment to families before they are faced to make a decision. Children and their parents should be told what to expect after taking the medication, the side effects, what to do when the effects occur, and how the health care provider will manage that if those problems arise (Rynn, Puliafico, Heleniak, Rikhi, Ghalib, & Vidair, 2011). The clinician needs to portray the information of the risks vs. benefits to the parent

and child (Strawn, et. al.). Practitioners should obtain accurate baseline measurement of physical symptoms and track these symptoms overtime (Rynn, et. al.). An area of concern to parents is the duration of treatment and how often side effects are experienced (Leonard, 2007). Another area of concern to parents is not feeling active enough in their child's treatment process. A challenge that arises is the limited insight and communication that children have which leads them to less likely seek help from their health care provider (Kitts & Goldman, 2012). However, assuring them that they are an active part of the treatment and that everything will be discussed with them usually resolves their concerns (Rappaport, et. al.).

Psychoeducational psychotherapy should contain the following components: education, support, and skill building. This will allow families to become better involved in the medication treatment. The goal of this type of therapy is to teach families about the medications, strategies to follow the medication regimen, how to communicate with their prescriber, and manage side effects (Cummings & Fristad, 2007). More positive studies done have shown that when a parent is involved in a child's medical care, there is an increase in response to the child's treatment compared to when a parent does not have an added benefit (Lebowitz, Woolston, BarHaim, Calcocoressi, Dauser, Warnick, Scahill, Chakir, Shechmer, Hermes, Vitulano, King, & Leckman, 2013). It is crucial to have parent's beliefs and values discussed before treatment begins and to offer supportive psychoeducation that encompasses safe and effective treatment options (Keeton, et. al.). Some factors that should be discussed also include education about the drug which should include length of time until therapeutic response is seen and any medication specific questions (Lovrin, 2009). Other considerations include scheduling more frequent follow-up

visits, increasing use of psychotherapy, and adding more telephone contacts between visits can help children adhere to their treatment plan (Bhatia, et. al.).

Regardless of the type of therapy, consent should always be discussed. Consent specifically regarding SSRIs should include the possibility of increased risk of suicidal thinking, safety concerns, and adverse reactions (Southammososane & Schmitz, 2015). Parents that suffer from anxiety disorders themselves are more likely to have children diagnosed with anxiety disorders as well (Keeton, Ginsburg, Drake, Sakolsky, Kendall, Birmaher, Albana, March, Rynn, Piacentini, & Walkup, 2013). It is important to have families communicate amongst each other to try to reduce tension, stress, and anxiety. Family conflict can arise however, if a child's anxiety requires family accommodation just as family conflict can increase a child's anxiety (Keeton, et. al.). The likelihood that a child will respond to treatment increases when a parent seeks their own medical help; thus it is crucial to have parents treated as well (Sakolsky & Birmaher, 2008).

Family education can reduce the re-occurrence of anxiety in children; however parents with their own anxiety disorders should seek separate treatment as well (Mohatt, et. al.). It is also important to take into consideration that it takes a family time to readjust their parenting to a child that does not experience anxiety any longer (Keeton, et. al.). Sometimes contacting the child's school teacher or guidance counselor can help clarify the severity of the anxiety reported by two parents or a parent and child (Kitts & Goldman, 2012). It is the responsibility of the health care provider to provide information regarding risks vs benefits of treatment options to children and families and help them understand which treatment modality is best for them as the initial choice of treatment (Rynn, et. al.).

Besides educating the children and parents, written materials and reputable websites on pediatric anxiety disorders can be provided so families can have a better understanding about the disorder, treatment, and side effects (Sakolsky & Birmaher, 2008). The health care provider should leave a detailed instruction to the families about the medication and its benefits, side effects, potential adverse reactions, and the FDA indication of use. Parents and families should be educated on discontinuing medications as abrupt discontinuation can lead to potential withdrawal effects (Keeton, et. al.). The majority of guidelines and resources focus on the education aspect to the parents directly, but forget to communicate with the child one on one. Explaining in words so the child can understand is vital. This should involve educating the child about his/her medical condition, the risks and benefits of the SSRI, assessing the child's level of understanding, and a review of the child's willingness to accept the treatment. If however, the child can demonstrate a full understanding of the risks and benefits of the medication and refuses to proceed with the current treatment and the medication is not essential for him or her the medication can be delayed to a later time (Costea, Barreto, & Burns, 2008). Educating both the child and family impacts their way of thinking and increases motivation on addressing their concerns regarding symptoms (Keeton, et. al.).

Another method used in educating families is called shared decision-making. This a type of method that takes a step back and focuses on the child itself. The treatment decision is based on the child's beliefs and values. Some of the important characteristics that makes this a shared-decision making process include the following: the child's outcome, beliefs, values, and perspectives are taken seriously, the child is kept safe, and the child can make health-related decisions regarding treatment options. This can be used along with family teaching and where

adherence to medication is required to provide the most beneficial teaching to children and families (Lovrin, 2009). It is often helpful to take into consideration the parent's opinion as this approach can address the family's concerns/questions and strengthen the therapeutic relationship (Kitts & Goldman, 2012). Family Talk Preventive Intervention is a type of method that can be used also. This intervention includes five to seven sessions that focuses on positive interactions between parents and children, increasing understanding of the illness/disorder, and increasing ways to communicate between parents and children (Kitts & Goldman, 2012).

Given children's developmental stage, it gets challenging to present information to them. When attaining a child's acceptance of treatment, taking into consideration the developmental stage and level of understanding is necessary. For example a preschooler may not understand information given to them so involving them in a discussion can increase trust and lead to a better treatment response. On the other hand a school-aged child can show understanding of how medicine works in the brain and in the body (Francis, 2008). Adolescents tend to like to be treated with respect and dignity more which can help foster the relationship (Lovrin, 2009). Informed assent should be the developmental process used for children so they have a better understanding of their disorder and thus show positive outcomes (da Costea, et. al.).

The U.S. Pharmacopeia (USP) Pediatrics Advisory Panel on Children and Medicines (2008) conducted interviews with different health professionals and educators developing developmentally appropriate educational guidelines for children so that they can receive the right information and communication about medications. Prior to asking questions, it is a good first step to engage the child in playful age appropriate language before asking anxiety or behavioral specific questions (Keeton, et. al.). These educational guidelines include what health care

providers believe children should know about their medications, considering what children want to know, answering any questions or concerns children have about their medication, providing the general risks and benefits of medications, teaching children how and when to ask questions, and lastly having parents demonstrate the proper use of medication (Francis, 2008).

Screenings can be done as an early assessment tool to determine which children are at greatest risk regarding their anxiety. Some of these screenings include the Multi-dimensional Anxiety Scale for Children and the Screen for Child Anxiety Related Emotional Disorders for anxiety symptoms (n.a., 2007). Screenings developed by other scholarly figures include a separate parent and child version. This screening is called Screen for Child Anxiety Related Disorders or SCARED (Birmaher, Brent, Chiappetta, Bridge, Monga, & Baugher, 1999). These screenings can be compared to the child and parent as the child screening alone may provide more information than the parent (Sakolsky & Birmaher, 2008). The screenings can potentially lead to improved long-term functioning in children. However, two ethical issues stand in the way when it comes to education in children. The first are the benefits and risks that come with taking medications for long term use and second is the possible benefit of decreasing anxiety when offering an explanation that takes into account hope which can be weighed against the risk of increasing anxiety with long term use of treatment. Taking into consideration the developmental stages and the assessment screenings of children along with more creative and thorough discussions about their medications can potentially reduce the risks and enhance the benefits of medication use in children (Francis, 2008).

Phelps (2013) recommends that the evaluation of a child should include the following: interviewing the family, getting information from the child's school and other health care

providers, and using screening tools and/or rating scales completed by the families and possibly teachers. The evaluation performed should include three aspects of anxiety disorders: behaviors, thoughts, and physical symptoms. According to Keeton, et. al. (2009), the final evaluation should include a psychiatric history, medical screening, questions from the child's academic/social/ emotional functioning, and family mental health history. The black box warning should also be included in the discussion of the risks and benefits of SSRIs. Treatment should be done as early as possible as delaying treatment can increase the child's risk of significant life impairment, re-occurrence of symptoms, and development of other psychiatric disorders (Mohatt, et. al.).

Certain behaviors may strengthen therapeutic communication and increase validity of the interview process for a child or adolescent. Some of these behaviors that the nurse or health care provider can perform include actively listening, showing interest in the disease/disorder, starting off with a friendly question, and making eye contact. Enhancing cooperative collaboration with children and adolescents can be challenging but promoting this can help collect better information from the child and reduce clinician bias. Other behaviors that can be helpful are using developmentally appropriate language, allowing the child time to speak when asking questions, and empathizing with the individuals. On the contrary, behaviors that should be avoided because they can worsen therapeutic communication and reduce the effectiveness of an interview include interviewing a child right after a procedure, entering with a large group, early morning rounding if the child is not a morning person, and dismissive behaviors. Reasons for treatment failure include misdiagnosis, inappropriate pharmacotherapy, cultural/ethnic factors, and medication side effects (Kitts & Goldman, 2012).

## **DISCUSSION**

### **The benefits of SSRIs**

Based on the findings from the literature review, an extensive amount of the review supports the use of SSRIs because of the benefits outweighing the risks. One of the benefits include significant improvement in anxiety severity in fluoxetine when compared to a placebo (da Costa, et. al.) This is where parents feel more comfortable when their child is prescribed an SSRI when they are explained the benefits rather than the very few risks. Other benefits include no increased risk of nausea/abdominal symptoms, adverse reactions, or suicidality. SSRIs showed superiority relative to placebo in many studies conducted (Strawn, et. al.). The research suggests that SSRIs produce few to none adverse reactions and show them to be safe and well tolerated among the pediatric population. SSRIs are the first line of treatment for anxiety disorders and produce few side effects (Cummings & Fristad, 2007).

### **The risks of SSRIs**

The research shows the benefits being far greater than the risks when it comes to SSRI usage, however there lies very few risks that should be discussed and mentioned to children and parents so they are fully aware of all the benefits and risks. Many studies showed a slight increase in suicide risk when taking an antidepressant. However, because of the very small number of completed suicides the benefits seem to far outweigh the risks of this. An important note to consider is the FDA's black box warning of the increased risk of suicide. As mentioned previously, even though it is a small increased risk clinicians should still explain this to families so they are forewarned. Even though side effects such as headache, insomnia, GI upset,



irritability, increased thoughts of suicide, and akathisia can occur, they are still not significant enough to withhold and abruptly discontinue the medication (Sakolsky & Birmaher, 2008). Again, thorough discussion about the possible side effects and adverse reactions should be explained to families but with the risk of them occurring to be slightly low.

### **Parent-child compliance on treatment regimen**

As discussed throughout this literature review, having parents and children comply with their medication regimen is very important in order to make sure children are receiving the best and appropriate care possible. Many resources can be used in this aspect of care to help ensure children are safe and parents are comfortable. Some of these resources include providing families with reputable websites on their child's diagnosis, psychotherapy, shared-decision making, anxiety rating scales, and developmentally appropriate explanations to children. Family education and presenting age appropriate explanations to children can further reduce tension and anxiety (Mohatt, et. al.). Increasing therapeutic communication can also play a major role in allowing a child to feel more involved in their diagnosis. Consent is something that is sometimes overlooked and should be explained fully about the possible adverse reactions and safety concerns (Southammososane & Schmitz, 2015). This can again further enhance compliance on children taking their medication and allow parents to feel better about their child's care. Children should be priority and letting them feel involved in every bit of their care can only reduce tension and make the transition for them easier.

## **LIMITATIONS**

There were several limitations to the review of this literature. A few of the research articles and studies dated back prior to ten years but was still used in the literature review because of its strong relevance to the topic. Searching for use the most up-to-date research is a limitation since most of the articles and studies discussed range closer to 2005-2008. Also, the main focus of this review was on the pediatric population and many of the research studies included adolescents in the age group. These articles were still used because of the limitation of studies primarily focusing on the pediatric population. Another limitation was the use of SNRIs along with SSRIs in the studies. This adds more to the research but strays away from the topic of just SSRIs.

Some studies were conducted outside of the United States such as Denmark, thus the findings of these studies may not be generalizable to the United States acute care setting. A lack of research lies in drug compliance with parents and children and recommendations to make in nursing to have families and children comply with medication better. A lack of research also lies in focusing just on the nursing aspect and what nurses as health professionals can do to better facilitate care of children with anxiety disorders.

## **NURSING IMPLICATIONS**

Overall, a substantial amount of research supports the effectiveness of SSRIs in the treatment regimen of pediatric anxiety disorders. With a small increased risk of suicide and few side effects, SSRIs are still closely monitored. Preliminary evidence provides support to include the risks and benefits of SSRIs in the teaching aspect of a child's medical care. Families should all feel involved in the care of their child with main priority and focus on the child no matter his/her age. Developmentally appropriate care should be used as this can facilitate better involvement and compliance for children. With this said, nurses should be aware of all the obstacles families and children can face when diagnosed with an anxiety disorder and help incorporate compliance, safety, and reassurance in their medical care.

Nurses as well as providers are in a position where they can educate, relieve stress/tension, provide safety, and provide resources to families regarding their child's anxiety disorder(s). It is vital to have the education be centered on each family's needs and wants. This can sometimes become challenging for nurses when each family is structured differently; but by encouraging nurses to have an open mind with respect to different cultures the challenge can further be reduced. It is important to note that sometimes health professionals forget that the child is the center of care and focus most of the care on the family as a whole. Special consideration and attention should be given first to the child presenting with the diagnosis. Age appropriate words, diagrams, pictures, or videos can be given to children explaining about their disorder. Allowing them to feel as involved in their medical care as possible can relieve and reduce further anxiety and tension. Nurses should be encouraged to speak directly to the child

first before speaking with the parents. Getting to know the child, his/her stressors, likes and dislikes is important for the nurse to take away when providing care of a child with an anxiety disorder. Permitting the nurse to have one-on-one time with the child can possibly reduce a child's anxiety. This is not done as often as it should be, but the focus of care should be the child first then parents and family together.

Nurses are the eyes and ears to everything. Specifically, they are the ones to provide discharge instructions and teaching when families are leaving the hospital. Education and providing resources to children and families becomes very important here. Nurses should be taught how to thoroughly give instructions to families and children regarding their disorder. This includes the risks, benefits, side effects, adverse reactions, and dosages of all the medications prescribed. As mentioned above, nurses might have to sometimes deliver instructions in a different manner to parents and children. Nurses and health professionals cannot forget that the child is the center of the medical care and should be told everything about their medications. Nurses should provide all the relevant resources which can include reputable websites, brochures, referrals, etc. when educating families. Specific training can be given to health professionals which can help them provide the best and effective teaching to parents and children.

Safety is key when it comes to caring for the pediatric population. Safety is encompassed everywhere from a child's hospital stay to making sure they understand the risks and benefits of taking SSRIs. Depending on the type of anxiety disorder, nurses should be alert for what can trigger more anxiety in a child or what a child prefers or doesn't prefer. All of these considerations as well as many more should be incorporated in a child's hospital stay or daily

living. Because of the difficulty children experience when diagnosed with an anxiety disorder, safety of all measures should be highly encouraged.

All in all, more research and studies should be conducted specifically on nurses and how they deal with children presenting with an anxiety disorder. This can further unwrap some information and educate nurses themselves on how to better effectively treat individuals with anxiety disorders. Nurses should also be experts on medication teaching and letting their children know what to expect and what not to expect when taking their medications. They should familiarize themselves with the medications the child is prescribed, and the family altogether. Pediatric nurses should also take continuing education on how to deal with children with anxiety, tension, and fear on ways to communicate effectively with these children to ease their anxiety. Providing detailed instructions, teaching, promoting safety, and providing all the resources and care possible from pediatric nurses can leave children happy and healthy.

## **RECOMMENDATIONS FOR PRACTICE**

Pediatric nurses need to become experts in effective communication since it is an essential element of caring for pediatric anxiety disorders. Nurses should get to know the child before providing care. This can include the child's likes/dislikes, stressors, fears, etc. Nurses need to be encouraged to provide direct care to the child itself and allow them to feel as involved and comfortable in their care as possible. This care should include developmentally age appropriate teaching and explanations about their diagnosis, effective therapeutic communication especially during times of excess anxiety or stress in the child's life, allowing the child to ask questions or any concerns they might have, and speaking to the family as a whole to make sure everyone understands the purpose of treatment. The key should be to provide medical and nursing care to the child first and making sure they are safe and comfortable before anything else. Facilities and hospitals should devise a plan that all pediatric nurses follow when caring for children with anxiety disorders. This plan can ensure that all staff members are educated on the topic and provide the same level of care to individuals.

Making simple changes to the environment can also allow a child to feel safer. This may include reducing medical equipment in the room or providing toys, books, and games for the child to ease their tension being in an unfamiliar setting. Nurses need to also make sure they are effectively and properly discussing what to expect and what not to expect from a child's medication regimen to the child and parents. It is important to have nurses speak directly first to the child and have them understand the treatment regimen and then include the parents in the plan. Nurses need to be thorough in their teaching to children and families specifically focusing on

the risks and benefits of their medications. Additional training may need to be encouraged for pediatric nurses specifically focusing on medication teaching and understanding the risks and benefits of all SSRIs. This will allow nurses to be fully competent in providing education to families.

## **APPENDIX A: TABLE OF EVIDENCE**



Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Strawn, J. R., Welge, J. A., Wehry, A. M., Keeshin, B., & Rynn, M. A. (2015). Efficacy and tolerability of antidepressants in pediatric anxiety disorders: A systematic review and meta analysis. <i>Depression and anxiety</i> , 32(3), 149-157.	To test the efficacy, safety, or tolerability of antidepressants in pediatric anxiety disorders.	A systematic review and meta-analysis of prospective, randomized, parallel-group, controlled trials of SSRIs and SNRIs in pediatric patients with non-obsessive compulsive disorder (OCD) was searched using PubMed/Med line from 1966-2014. The meta-analysis used models such as the Pediatric Anxiety Scale to evaluate	Systematic review and meta-analysis of prospective randomized parallel-group, controlled trials	1,673 pediatric patients with non-obsessive compulsive disorder (OCD) anxiety disorders were sampled	Nine trials of 1,673 patients and six medications demonstrated efficacy and no increased risk was observed for nausea/abdominal symptoms, discontinuation as a result of an adverse reaction, or suicidality. SSRIs/SNRIs suggest superiority relative to placebo for the treatment of pediatric anxiety disorders.	Health care providers as well as nurses need to be aware of the current medication treatments/guidelines that are effective or not in treating pediatric anxiety disorders. This study suggests that SSRIs are indeed successful in treatment.

		changes in symptoms, suicidality, and adverse effects.				
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Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Keeton, C.P., Gingburg, G.S., Drake, K.L., Sakolsky, D. Kendall, P.C., Birmaher, B., &... Walkup, J.T. (2013). Benefits of child-focused anxiety treatments for parents and family functioning. <i>Depression &amp; Anxiety</i> (1091-4269), 30(9), 865-872.	To examine changes in parent global psychological distress and family dysfunction/burden and to determine whether or not these changes were in relation to parent and family factors associated with the child's treatment condition and response	The 488 youths were randomly assigned to 12 weeks of individual cognitive behavioral therapy (CBT), mediation treatment of sertraline, their combination, or medication management with a placebo within the Child/Adolescent Multimodal Study (CAMS). At pre and posttreatment children completed a measure of family	Randomized controlled multi-site comparative treatment trial	488 youths aged 7-17 years who meet the criteria on the DSM-IV-TR for social phobia, separation anxiety, and/or generalized anxiety disorder, and their parents	Parental psychological distress and trait anxiety, and parent-reported family dysfunction improved only for parents whose child were rated as treatment responders, and these changes were unrelated to treatment condition. Regardless of treatment condition or response, family burden and child-reported anxiety treatments improved considerably from pre to posttreatment. If children	The results of these findings can be used to help children and families that suffer from anxiety to use child-focused anxiety treatments to lessen the severity of the anxiety among the children and also parents. Nurses can educate families on the benefits of child-focused anxiety treatments.

		functioning and parents completed measures of trait anxiety, psychological distress, family functioning, and burden of child illness.			respond successfully to treatment, findings suggest that child-focused anxiety treatments can result in improvements in nontargeted parent symptoms and family functioning.	
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Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Dalton, S. O., Johansen, C., Mellemkjær, L., Sørensen, H. T., Nørgård, B., & Olsen, J. H. (2003). Use of selective serotonin reuptake inhibitors and risk of upper gastrointestinal tract bleeding: a population-based cohort study. <i>Archives of Internal Medicine</i> , 163(1), 59-64.	To examine the risk of upper gastrointestinal bleeding in patients taking antidepressants specifically SSRIs.	All users of antidepressants in North Jutland County, Denmark from January 1, 1991, to December 31, 1996 were identified using the Pharmaco-Epidemiologic Prescription Database of North Jutland. Among the users taking antidepressants, hospitalizations for upper GI bleeding which was searched from the hospital discharge register, was compared with the number of hospitalizations who did not have prescriptions for antidepressants.	Population-Based Cohort Study	490,000 inhabitants of North Jutland County, Denmark from January 1, 1991, to December 31, 1995 who have been on antidepressants	During periods of SSRI use without use of other drugs associated with upper GI bleeding, 55 episodes of GI bleeding occurred. The combined use of an SSRI with a nonsteroidal anti-inflammatory drug (NSAID) or low-dose aspirin increased the risk of an upper GI bleed. SSRIs increase the risk of upper GI bleeding with the concurrent use of an NSAID	These results can be taken into consideration when health care providers prescribe SSRIs to children. Caution should be taken if the individual is already on an NSAID or taking aspirin so the risk of upper GI bleeding can be avoided. Nurses can provide teaching to patients and families regarding the risk of upper GI bleeding with the combination of an SSRI and NSAID or aspirin.

					<p>or low dose-aspirin, whereas the risk of upper GI bleeding could not be related to other types of antidepressants .</p>	
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Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Manassis, K. (2005) Paroxetine improves social anxiety disorder in children and adolescents. <i>Evidence Based Mental Health</i> , 8(2), 43-43.	To test if paroxetine is effective and well tolerated in children and adolescents with social anxiety disorder	322 children and adolescents diagnosed with social anxiety disorder received paroxetine 10 mg/day for the first week and then increased by 10 mg/week up to a maximum dose of 50 mg. A placebo pill was also used. All participants received age appropriate pamphlets on social anxiety disorder and self-help. Parents of these children also received pamphlets. The follow-up period was 16 weeks.	Multicenter randomized double-blind, placebo-controlled trial	322 children and adolescents from the ages of 8 to 17 years with social anxiety disorder according to the DSM-IV criteria	Paroxetine greatly increased the proportion of responders at 16 weeks, compared with placebo. The common adverse effects were insomnia, decreased appetite, and vomiting. In the children/adolescents that received paroxetine five had suicidal ideation, threatened suicide, or self-harmed, compared with none in the placebo group. Paroxetine is effective for	Paroxetine is an effective SSRI that can be used to treat anxiety disorders in children and adolescents. The findings suggest very few suicidal ideations and adverse reactions which can be reassuring to parents and children.

					<p>young people and adolescents with social anxiety disorder and produces few serious adverse reactions.</p>	
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Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Lebowitz, E. R., Woolston, J., Bar-Haim, Y., Calvocoressi, L., Dauser, C., Warnick, E., ... & Leckman, J. F. (2013). Family accommodation in pediatric anxiety disorders. <i>Depression and anxiety</i> , 30(1), 47-54.	To test the utility of the Family Accommodation Scale-Anxiety (FAFSA) for assessing family accommodation across childhood anxiety disorders and report on the first study of family accommodation	Participants were parents of anxious children from two anxiety disorder specialty clinics and a general outpatient clinic. Measures included FAFSA, diagnostic interviews, and measures of anxiety and depression.		75 parents of anxious children and 50 children from an anxiety disorder specialty clinic and 25 children from a general outpatient clinic.	Most parents revealed family distress and modification of family routines resulting from accommodation and consequences from not accommodating. The FAFSA showed good consistency and validity. The FAFSA shows a promising way to assess for accommodation in childhood anxiety disorders.	The FAFSA can be used in the health care setting when families are having a hard time adjusting to their child's anxiety. This scale can help families accommodate so there are fewer symptoms, impairment, and poorer treatment outcomes.

Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Allgulander, C., Florea, I., & Huusom, A. K. T. (2006). Prevention of relapse in generalized anxiety disorder by escitalopram treatment. <i>International Journal of Neuropsychopharmacology</i> , 9(5), 495.	To test the efficacy and tolerability of escitalopram in the prevention of relapse in generalized anxiety disorder	All of the participants who were diagnosed with a primary diagnoses of generalized anxiety disorder and a Hamilton Anxiety score of 20 or more received 12 weeks of a fixed dose of escitalopram (20 mg/day). Of the 491 participants, 375 responded with a Hamilton Anxiety score of 10 or less and were randomized to double-blind treatment with 20 mg/day escitalopram (n=187) or placebo (n=188). Treatment was ongoing for 24-76	Randomized double-blind study	491 patients with a diagnosis of generalized anxiety disorder and a Hamilton Anxiety total score of 20 or more were given 12 weeks of escitalopram 20 mg/day.	The risk of relapse was higher for the placebo group than for the escitalopram treated group. The proportion of patients who relapsed was statistically higher in the placebo group than in the escitalopram group. Escitalopram was tolerated and 20 mg/day of this significantly reduced the risk of relapse in patients with generalized anxiety disorder.	Relapse or the recurrence of symptoms after a period of getting better is a common problem that patients face. When this issue arises regarding relapse in generalized anxiety disorders, health care providers can prescribe escitalopram as a way to prevent relapse from occurring. This can be reassuring to patients and families when they feel as though their symptoms are getting worse or deteriorating.

		<p>weeks unless however the patient relapsed or experienced other adverse reactions. Relapse was defined as a patient having a score of 15 or more in the Hamilton Anxiety scale.</p>				
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Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Lovrin, M. (2009). Treatment of Major Depression in Adolescents: Weighing the Evidence of Risk and Benefit in Light of Black Box Warnings. <i>Journal of Child &amp; Adolescent Psychiatric Nursing</i> , 22(2), 63-68.	To inform clinicians who are concerned with the FDA's black box warning on the increased risk of suicidal ideation and SSRIs in adolescents with major depressive disorder.	Relevant literature from 2004 to 2006 as well as a case study based on the author's clinical experience.	Review of the literature on the risks and benefits of SSRIs regarding the guidelines issued by the U.S. Food and Drug Administration (FDA) and the Medicines and Healthcare Products Regulatory Agency of the United Kingdom.	Relevant literature from 2004-2006	There are risks and benefits in SSRI usage that clinicians need to be aware of, however they remain as an effective means of treatment. SSRIs as well as patient and family education regarding side effects should be a part of the treatment plan.	After the FDA's black box warning on antidepressants, clinicians as well as patients have raised concern regarding SSRIs. However, despite the warning they are still showing to be effective in the treatment of depressive symptoms and anxiety disorders. Nurses should include education on the side effects of this class of antidepressants to patients and families.

Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Czaja, A. S., Valuck, R. J., & Anderson, H. D. (2013). Comparative safety of selective serotonin reuptake inhibitors among pediatric users with respect to adverse cardiac events. <i>Pharmacoepidemiology And Drug Safety</i> , 22(6), 607-614.	To perform a comparative safety study to assess for the risk of ventricular arrhythmia, cardiac arrest, or sudden death in pediatric users who are prescribed SSRIs.	Data taken from 1997 to 2009 from US claims data of new pediatric users less than the age of 18 taking SSRIs were identified. Adverse cardiac effects occurring within 12 months of the start of an SSRI were identified and validated using the International Classification of Disease. A cox proportional hazard analysis was used to estimate the risk of each SSRI.	Comparative safety study	113,714 pediatric users of SSRIs less than 18 years of age were included	Sertraline and fluoxetine were the most commonly prescribed SSRIs. Forty events occurred within the 12 month period of the start of an SSRI. The incidence rate of cardiac adverse effects was highest for escitalopram and lowest for fluoxetine. Overall, the incidence of cardiac adverse effects is low among pediatric SSRI users. The risk of cardiac adverse reactions was higher for citalopram and escitalopram as	Health care providers should prescribe SSRIs with caution especially when prescribing to the pediatric population. Adverse reactions are always trying to be avoided at all costs, however there lies some risk when initiating an SSRI. Nurses should educate families and children on the possible cardiac adverse effects and which medications have a higher risk of this than other medications.

					compared with fluoxetine users.	
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Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Wolhfarth, T.D., van Zwieten, B. J., Lekkerkerker, F. J., Gispén-de Wied, C. C., Ruis, J. R., Elferink, A. J., & Storosum, J. G. (2006). Antidepressants use in children and adolescents and the risk of suicide. <i>European Neuropsychopharmacology</i> , 16(2), 79-83.	To examine whether or not all antidepressants are linked with a risk of suicidal behaviors.	All 22 pediatric short-term placebo-controlled trials of SSRIs and SNRIs were identified and examined for events related to suicidality. They were categorized into three categories: suicide, suicide attempts, or suicidal thoughts. A random effect meta-analysis was used to gather the information from all the trials.	Random effect meta-analysis	22 pediatric short-term placebo-controlled trials of SSRIs and SNRIs	No completed suicides were reported. However, from each category there was at least one study with an increased risk for events related to suicide. Caution should be used in the use of all SSRIs and SNRIs in the pediatric population.	Nurses should forewarn parents and children on the increased risk of suicide regarding SSRIs. However, clinicians and nurses should not go to the extent of frightening parents to where they do not want to proceed with treatment. The increased risk of it should be mentioned before starting any child on an SSRI.

Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Isolan, L., Pheula, G., Salum, Jr, G. A., Oswald, S., Rohde, L. A., & Manfro, G. G. (2007). An open-label trial of escitalopram in children and adolescents with social anxiety disorder. <i>Journal of child and adolescent psychopharmacology</i> , 17 (6), 751-759.	To evaluate the efficacy and safety of escitalopram in the treatment of social anxiety disorder in children and adolescents.	Twenty outpatients with a primary diagnoses of social anxiety disorder were treated in a 12-week open trial with escitalopram. The changes were looked upon from the start of the treatment to the end using the Clinical Global Impression-Improvement scale. Other measures used included the Clinical Global-Impression scale, the Social Phobia and Anxiety Inventory for Children, the Screen for Child	Open-label trial	Twenty outpatients with a primary diagnoses of social anxiety disorder were treated in a 12-week open trial with escitalopram.	On the Clinical Global Impression-Improvement scale, 13 out of the 20 patients had a score of 2 or less. Patients showed improvement in symptoms and quality of life measures from the start to week 12. These results suggest that escitalopram is well tolerated and safe/effective for pediatrics with social anxiety disorder. However, future studies are warranted.	These results can suggest that escitalopram is indeed well tolerated and safe for pediatric users with social anxiety disorders. Clinicians can safely prescribe this SSRI to the pediatric population who are diagnosed with social anxiety disorder. When given options of SSRIs, escitalopram can safely be chosen.



		and Anxiety Related Emotional Disorders-Child and Parent Version, and The Youth Quality of Life Instrument- Research Version.				
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Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
da Costa, C. Z. G., de Moraes, R. M. C. B., Zanetta, D. M. T., Turkiewicz, G., Neto, F. L., Morikawa, M., ... & Asbahr, F. R. (2013). Comparison Among Clomipramine, Fluoxetine, and Placebo for the Treatment of Anxiety Disorders in Children and Adolescents. <i>Journal of child and adolescent psychopharmacology</i> , 23(10), 687-692.	To test the efficacy of clomipramine, fluoxetine and a placebo and compare their action in children and adolescents with anxiety disorders	The thirty subjects were submitted to a 12 week double-blind, randomized, placebo-controlled trial of clomipramine and fluoxetine. The measures used included: the Schedule for Affective Disorders and Schizophrenia, the Multidimensional Anxiety Scale for Children, the Children's Depression Inventory, the Clinical Global Impression, and the Children's Global Assessment Scale.	Double-blind, randomized, placebo-controlled trial	30 subjects ages 7-17 who were diagnosed with generalized anxiety disorder and/or separation anxiety disorder and/or social phobia. N=9 for the clomipramine group, n=10 for the fluoxetine group, and n=11 for the placebo group.	All groups showed a substantial improvement after 12 weeks of treatment. There were significant improvement in the fluoxetine and placebo groups regarding anxiety severity and impairment. There were no significant differences between clomipramine and placebo groups or between fluoxetine and clomipramine groups.	When prescribing SSRIs it is vital to know which ones have been studied as more effective and safer than others. When comparing clomipramine and fluoxetine health care providers can determine that they both stand on the same level of efficacy and effectiveness.

Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Cooper, W. O., Callahan, S. T., Shintani, A., Fuchs, D. C., Shelton, R. C., Dudley, J. A., ... & Ray, W. A. (2014). Antidepressants and suicide attempts in children. <i>Pediatrics</i> , 133(2), 204-210.	To compare the risk of medically treated suicide attempts among new users of sertraline, paroxetine, citalopram, escitalopram, and venlafaxine to the risk of new users of fluoxetine.	A retrospective cohort study included 36,825 first time users of one of the antidepressant medications listed. The sample included children aged 6-18 years of age enrolled in Tennessee Medicaid between 1996 and 2006. Medically treated suicide attempts were identified from Medicaid files and confirmed with medical record review.	Retrospective cohort study	36,842 children aged 6-18 years enrolled in Tennessee Medicaid between 1995 and 2006	Confirmed through the medical record review, 419 members of the study had a medically treated suicide attempt with the intentions or explicit attempt to die. Of these 419 cohort members, 4 actually completed suicide. There was not a significant difference among the current users of SSRIs and SNRIs compared with the users of fluoxetine. However, users of multiple antidepressants had increased risk for suicide attempt. There was no evidence that the risk of suicide attempts differed for commonly	It is important to raise awareness to children, families, and health care providers of the increased risk of suicide and suicide attempts in children prescribed SSRIs. It is a huge concern that still comes up as a topic of discussion when children are treated with SSRIs for their anxiety. Nurses should provide the more current and reliable education regarding the increased risk of suicide/suicide attempts to families.

					prescribed SSRIs and SNRIs.	
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Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Piacentini, J., Bennett, S., Compton, S. N., Kendall, P. C., Birmaher, B., Albano, A. M., ... & Walkup, J. (2014). 24-and 36-week outcomes for the Child/Adolescent Anxiety Multimodal Study (CAMS). <i>Journal of the American Academy of Child &amp; Adolescent Psychiatry</i> , 53(3), 297-310.	To report active treatment group differences on response and remission rates and changes in anxiety severity at weeks 24 and 36 for the Child/Adolescent Anxiety Multimodal Study (CAMS).	488 youths aged 7-17 years diagnosed with separation, generalized, or social anxiety disorder were randomized to 12 weeks of CBT, sertraline, the combination of CBT and sertraline, or pill placebo. 412 youths were randomly assigned to CBT, sertraline, and combination. 76 youths were randomized to the pill placebo. Participants attend 6 monthly booster sessions. Efficacy of CBT, sertraline, and the combination were assessed at 24 and 36 weeks. Youths in the placebo	Randomized controlled multi-site comparative treatment trial	488 youths aged 7-17 years who meet the criteria on the DSM-IV-TR for social phobia, separation anxiety, and/or generalized anxiety disorder, and their parents	80% of the participants showed a positive response at weeks 24 and 36. The combination of sertraline and CBT upheld an advantage over CBT and sertraline alone. Compared to the combination of CBT and sertraline and CBT alone, youth in sertraline obtained more concomitant psychosocial treatments, whereas the youth in sertraline and CBT obtained more concomitant treatment. The combination of CBT and sertraline had an advantage over CBT and	Nurses and clinicians should encourage patients and families to combine psychosocial treatment with medication treatment since the CAMS showed the effectiveness of the combination than CBT and sertraline on its own. This can potentially leave parents less tense about having their child on medication treatment alone. This study can also lead towards new research on other psychosocial treatment that can be used with medications.

		group who were nonresponsive after week 12 were offered active CAMS treatment. Blind independent evaluators assessed anxiety severity, functioning, and treatment response.			sertraline alone. CBT and sertraline remained indistinguishable.	
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Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Schneeweiss, S., Patrick, A. R., Solomon, D. H., Dormuth, C. R., Miller, M., Mehta, J., ... & Wang, P. S. (2010). Comparative safety of antidepressant agents for children and adolescents regarding suicidal acts. <i>Pediatrics</i> , peds-2009.	To assess the risk of suicide attempts and suicide after the start of an antidepressant medication use by children and adolescents.	A 9-year cohort study was conducted by using population wide data from British Columbia. Adolescents and children from the ages of 10-18 were identified as a new user of an antidepressant and with a recorded diagnosis of depression. Study outcomes included hospitalizations caused by intentional self-harm and suicide death.	9- year cohort study	20,906 children/adolescents aged 10-18 years	80% of the 20,906 children/adolescents had no previous history of antidepressant use. During the first year of observation, 266 attempted suicide and 3 completed suicide. There were no significant differences in rate ratios comparing fluoxetine and citalopram, fluvoxamine, paroxetine, and sertraline. The findings support FDA's issue of the black box warning on all antidepressants regarding	The black box warning on antidepressants is an important concern to bring up to families and children. Even though there is a slight increased risk of suicide, clinicians and nurses should not portray the warning as a means to not start on an antidepressant.

					increased risk of suicide in children and adolescents beginning antidepressants.	
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Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Rynn, M. A., Walkup, J. T., Compton, S. N., Sakolsky, D. J., Sherrill, J. T., Shen, S., ... & Birmaher, B. (2015). Child/Adolescent Anxiety Multimodal Study: Evaluating Safety. <i>Journal of the American Academy of Child &amp; Adolescent Psychiatry</i> , 54(3), 180-190.	To evaluate the frequency of adverse events across 4 treatments in the CAMS and to compare the frequency of adverse events between children and adolescents.	Participants included children and adolescents from the ages of 7-17 with one or more of the following disorders: separation anxiety disorder, generalized anxiety disorder, or social phobia based on the criteria of the DSM-IV criteria. The participants were grouped into cognitive-behavioral therapy (n=139), sertraline (n=133), a combination of them both (n=140), or pill placebo (n=76). Data on the adverse reactions	Randomized controlled multi-site comparative treatment trial	488 children and adolescents aged 7-17 years who were diagnosed with one of the following disorders: separation anxiety disorder, generalized anxiety disorder, or social phobia based on the criteria of the DSM-IV criteria were included in the study.	There were no differences between the sertraline versus placebo for physical and psychiatric adverse reactions or any individual physical or psychiatric adverse events. The total physical adverse events were higher in the sertraline alone treatment when compared to CBT and the combination. The participants who received sertraline alone reported higher rates of physical adverse reactions when compared to the	It is important to evaluate safety on SSRIs especially when prescribing them to the pediatric population. It is vital to have nurses provide education to families and children especially under the age of 12 of possible physical adverse reactions. Families and children should be told what to expect from the medications and all the physical adverse events that can arise. This can potentially ease up tension between parents.

		<p>were drawn from a standardized inquiry method and a self-report physical symptoms checklist.</p>			<p>combination and CBT. Physical adverse events were higher in children less than or equal to 12 years of age. The results support the safety and tolerability of SSRIs for treatment of anxiety disorders. Additional monitoring for physical adverse reactions is recommend for children 12 years or younger.</p>	
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Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Smith, E. G. (2009). Association between antidepressant half-life and the risk of suicidal ideation or behavior among children and adolescents: confirmatory analysis and research implications. <i>Journal of affective disorders</i> , 114(1), 143-148.	To determine if from a recent meta-analysis of pediatric antidepressants trials if the multiple-dosing medication half-life is associated with the risk of suicidal ideation or behavior.	Based on the FDA's initial and published versions of their pediatric antidepressant meta-analysis, risks (ideation, attempt, or preparation) for suicidal behavior for seven antidepressants were obtained. The risk of suicidal behavior and antidepressant half-life was examined using a nonparametric test.	Confirmatory analysis/Nonparametric test, Spearman's rho	Relative risks for suicidal ideation, attempt, or preparation for seven antidepressants were obtained from both the FDA's initial and published versions of their pediatric antidepressant meta-analysis	A significant correlation was observed for the initial analysis. With fluoxetine the correlation was strong to a change in suicidality ranking which has the longest half-life among antidepressants. This occurred when results from the Treatment of Adolescent Depression Study were included in the meta-analysis. The risk for suicidal ideation or behavior in short-term antidepressants appears to at least partly be	Clinicians should consider the half-life of antidepressants when prescribing them to children and adolescents. This is important since the study suggests an association with short-term antidepressants and risk of suicidal ideation. Nurses can inform children/adolescents and families about antidepressants half-life and the relative risk of suicidal ideation.

					associated with antidepressant half-life.	
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Articles	Purpose	Method	Study Design	Sample	Results (key findings)	Nursing implications
Fergusson, D., Doucette, S., Glass, K. C., Shapiro, S., Healy, D., Hebert, P., & Hutton, B. (2005). Association between suicide attempts and selective serotonin reuptake inhibitors: systematic review of randomised controlled trials. <i>Bmj</i> , 330(7488), 396.	To determine whether there is an association between use of SSRIs and suicide attempts	Studies were randomized in controlled trials comparing an SSRI with either a placebo or non-SSRI. The study included clinical trials that assessed any clinical condition. Researchers excluded abstracts, crossover trials, and all trials whose follow up period was less than a week.	Systematic review of controlled trials	87,650 patients included in seven hundred and two trials	A significant increase in the odds of suicide attempts were observed for patients prescribed SSRIs compared to the placebo. An increase in the odds of suicide attempts was also noted in comparing SSRIs with therapeutic interventions other than tricyclic antidepressants. There was not a difference in the odds ratio of suicide attempts in the pooled analysis of SSRIs versus tricyclic antidepressants.	Because of the increased risk of suicidal ideation in patients prescribed SSRIs, educating patients and families about it is very important. Nurses should be up-to-date on the latest statistics regarding suicidal ideation and the association between antidepressants.

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