

Pediatric Psychopharmacology in Primary Care

Part 2: Mood & Anxiety

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Disclosure

I have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services discussed in this CME activity.

I do intend to discuss unapproved/investigative use of commercial products in my presentation.

Learning Objectives

Evaluate and update your use of valid screening and monitoring tools for pediatric anxiety and mood disorders

Choose approved and/or effective medications when treating pediatric anxiety and mood disorders



CASE 1: Cam

8-year-old 2nd grader

10 mg Focalin XR & 3 mg melatonin

Returns for routine care 12-year-old visit

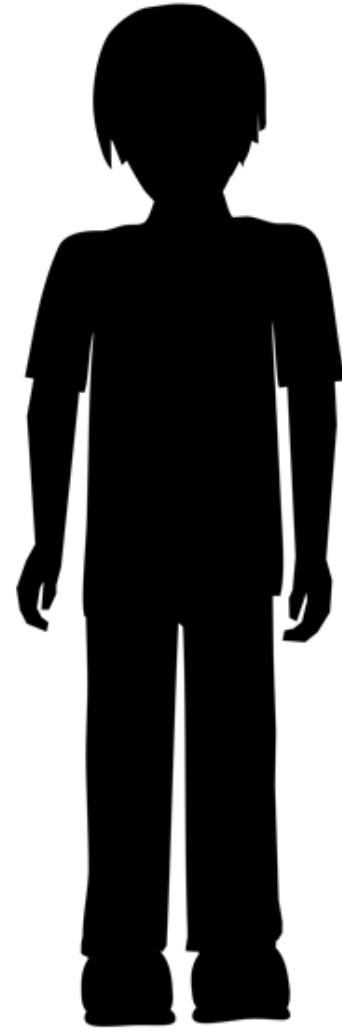
Cam at 12

Irritable, tearful, clingy, does not want to do things he used to enjoy

“I wish I weren’t here”

No trauma, has 504 Plan and sees school counselor

Pediatric Symptom Checklist, PHQ-9: elevations



Behavioral and
Emotional
Screeners:
School-age &
Adolescents

Strengths and Difficulties
Questionnaire

Pediatric Symptom Checklist - 17

Pediatric Symptom Checklist - 35

Screens for Anxiety and Depression

(Practice Change?)

Depression

- PHQ-9 and PHQ-2 (12 yrs +)
 - <https://www.apa.org/depression-guideline/patient-health-questionnaire.pdf>
 - <https://www.med-ig.com/files/noncme/material/pdfs/Llo42%20IG%20tools.pdf>
- Moods and Feelings Questionnaire (6-19 yrs)
 - <https://devepi.duhs.duke.edu/measures/the-mood-and-feelings-questionnaire-mfq/>

Anxiety

- SCARED (8-18yrs)
 - <https://www.pediatricbipolar.pitt.edu/resources/instruments>
- Spence (3 yrs +)
 - <https://www.scaswebsite.com/>

What would
you do?

Refer

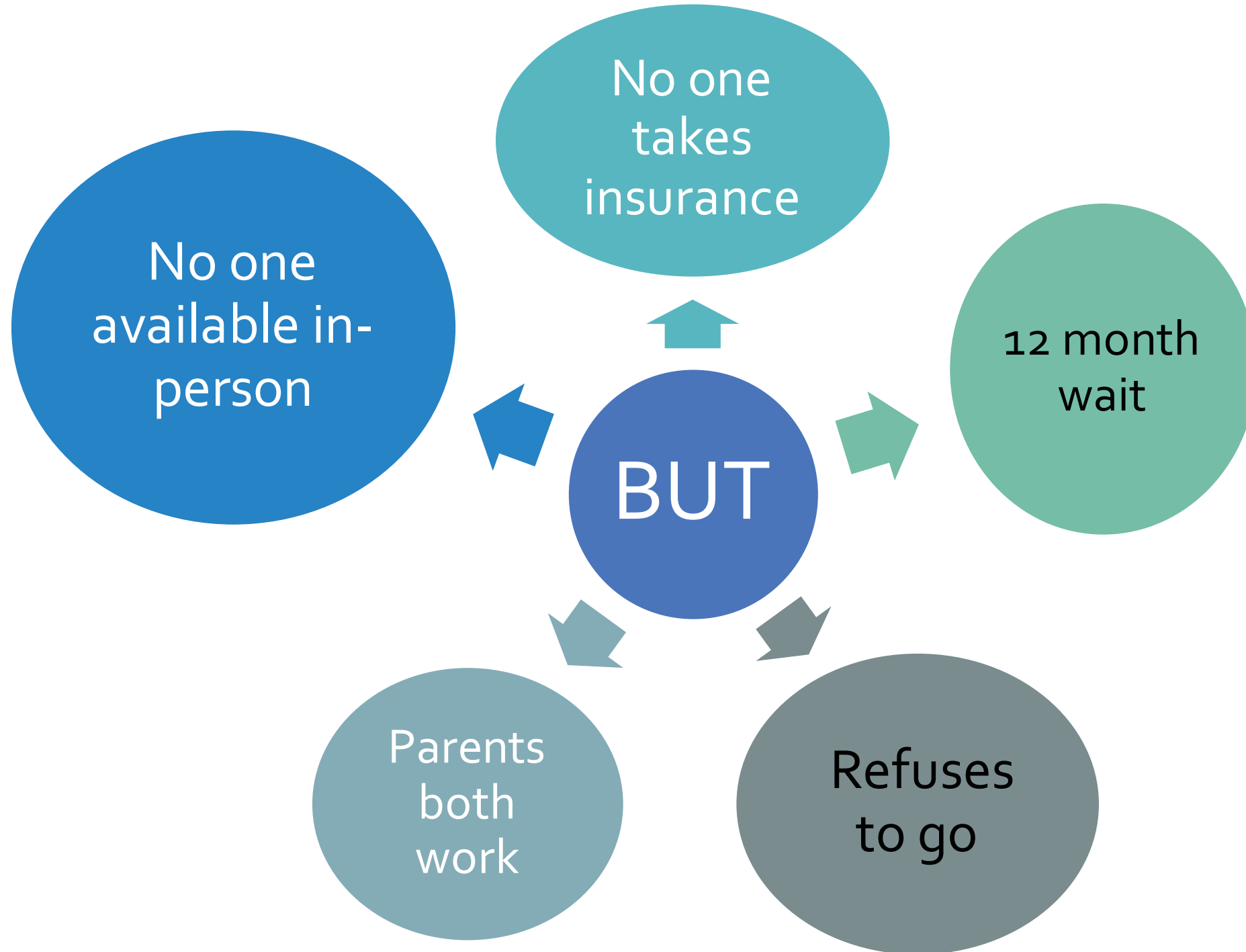
1. Refer to outside therapy

Stop

2. Stop Focalin XR

Start

3. Start SSRI



ADHD and Co-Morbid Diagnoses

Oppositional Defiant Disorder 30-50%

Depression 29-45%

Bipolar Disorder 20%

Anxiety ~25%

Learning Disability 20-25%

Tic Disorder 20%

Depression Presentation in Children

- Less persistent and consistent than in adults
- More bored, irritable or angry than sad
- Early signs: less social initiative, family activity





WORKBOOKS



MINDFULNESS



EXERCISE



SLEEP



NUTRITION

Next Steps

Now would you start an SSRI?

Which SSRI?



SSRI

Indications: Depression

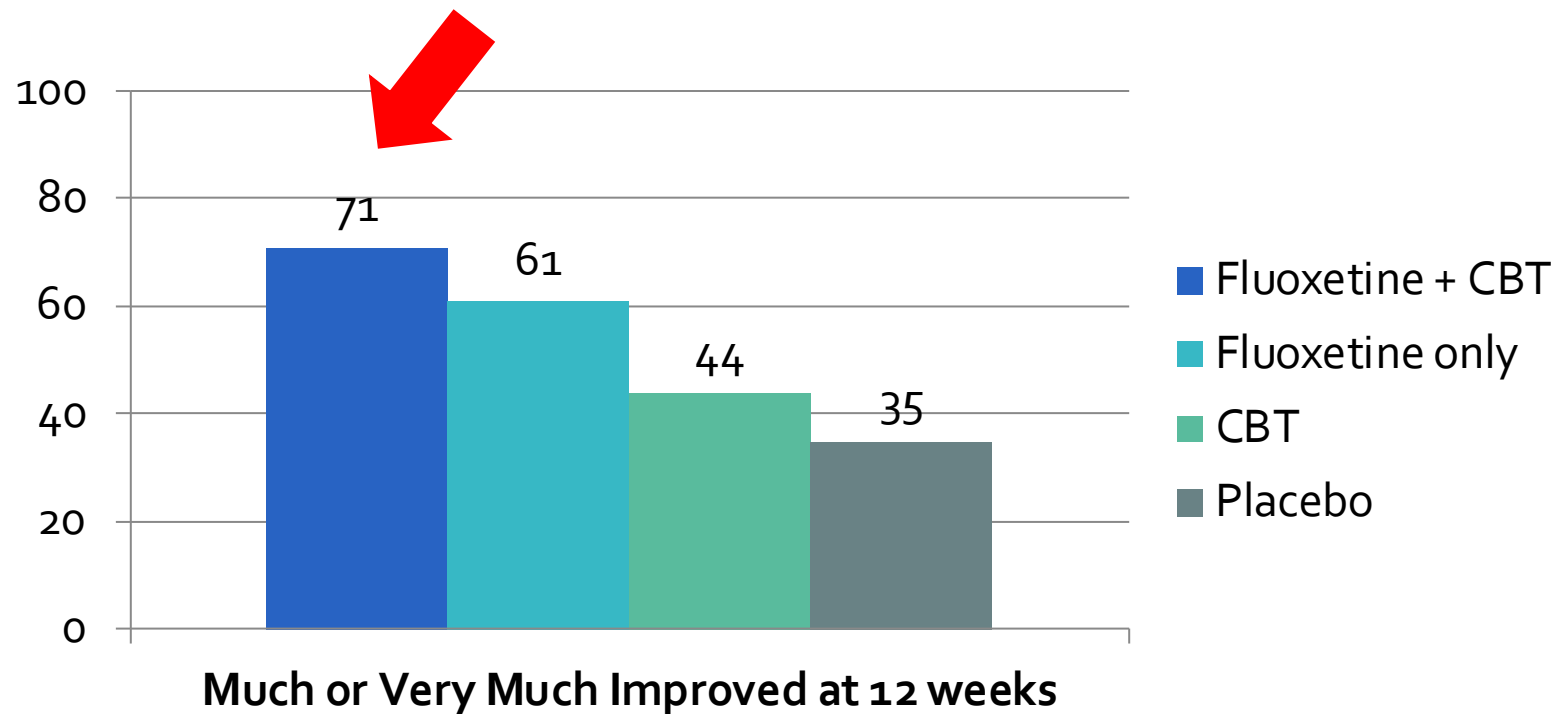
| Generic | Brand | Age | Approval | Notes |
|---------------------|---------|-------|-----------------------------|-------------------------|
| Fluoxetine | Prozac | ≥8 y | Depression | ±Long ½ life |
| Escitalopram | Lexapro | ≥12 y | Depression | +Few interactions |
| Citalopram | Celexa | | 1 + study in 7-17 yr olds | Max dose= 40 mg b/c QTc |
| Sertraline | Zoloft | | 2 + studies in 6-17 yr olds | |
| Paroxetine | Paxil | | | |

| Generic | Brand | Dose in mg | Notes |
|----------------|---------------|------------|--|
| Bupropion | Wellbutrin SR | 37.5-400 | -Seizure risk +ADHD treatment |
| Venlafaxine | Effexor XR | 37.5-225 | -HTN risk +Effective for teens +Anxiety treatment |
| Desvenlafaxine | Pristiq | 50-400 | |
| Mirtazapine | Remeron | 15-45 | ±Weight gain ±Sedation -Negative RCT findings |
| Duloxetine | Cymbalta | 20-60 | SNRI |

Other medications
(OFF-LABEL):
Depression

Treatment for Adolescents with Depression Study (TADS)

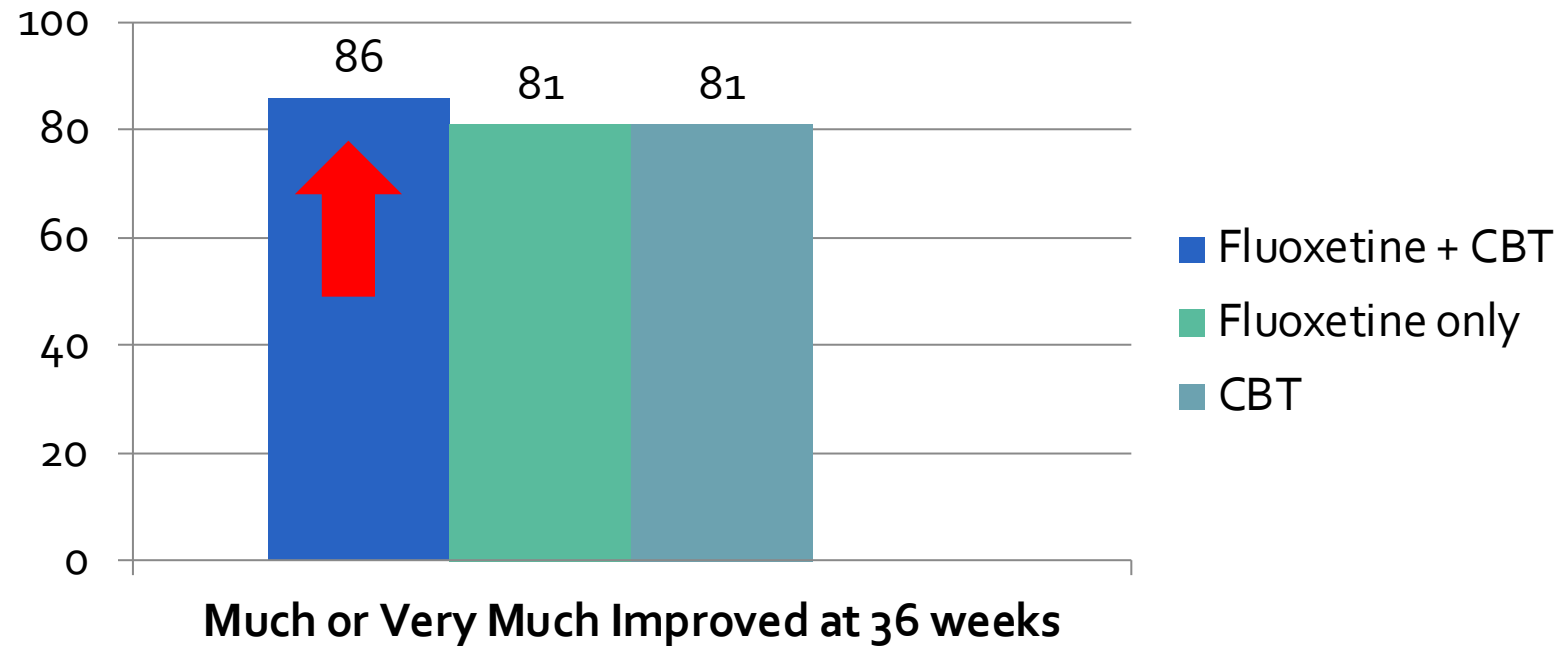
n=439, 12-17 yO



March J, et al: (TADS): methods and message at 12 weeks. J Am Acad Child Adolesc Psychiatry 2006; 45:1393-1403

Treatment for Adolescents with Depression Study (TADS)

n=439, 12-17 yo



<http://www.nimh.nih.gov/funding/clinical-trials-for-researchers/practical/tads/questions-and-answers-about-the-nimh-treatment-for-adolescents-with-depression-study-tads.shtml>

Negative Studies for Major Depression in Children

- Citalopram
- Escitalopram
- Paroxetine
- Mirtazapine
- Nefazadone
- Venlafaxine

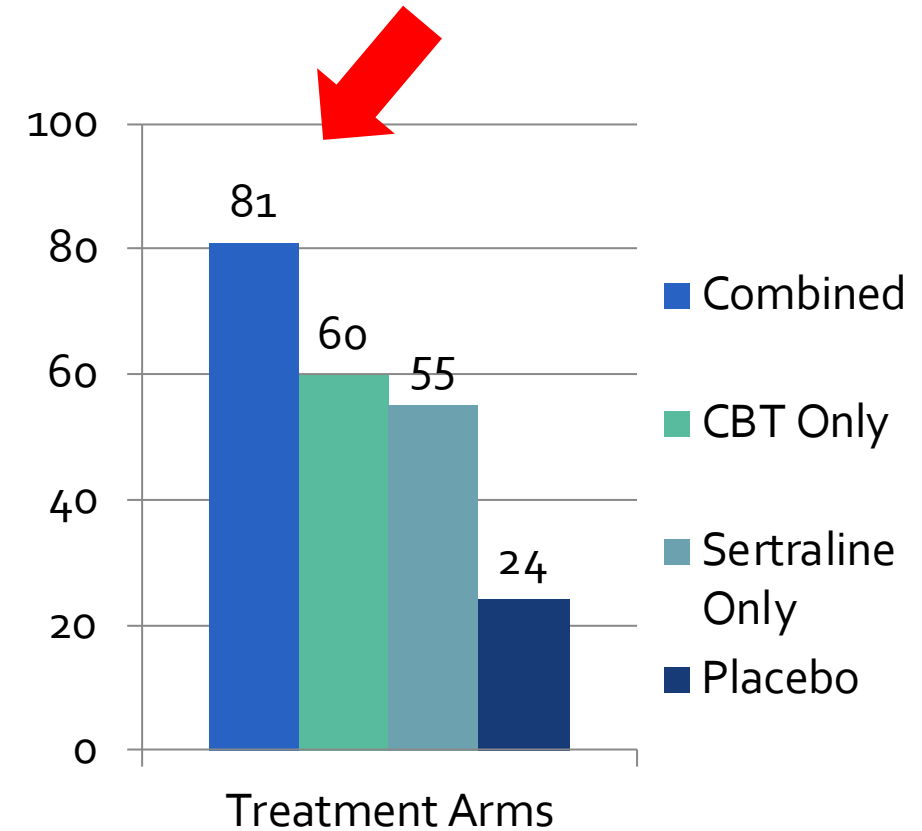
Similar response rates, higher placebo rates

| Generic | Brand | Age | Approval | Notes |
|-------------|------------|---------|----------|-------------------------------------|
| Fluoxetine | Prozac | ≥7 y | OCD | ± Long 1/2 life |
| Sertraline | Zoloft | ≥6 y | OCD | |
| Fluvoxamine | Luvox | ≥8 yr | OCD | |
| Duloxetine | Cymbalta | 7-17 yr | GAD | Weight loss, Δ HR & BP |
| Venlafaxine | Effexor | | | + RCT Gen & Social Anxiety - HTN |
| Buspirone | Buspar | | | No data in youth |
| Bupropion | Wellbutrin | | | No data in youth |

Medications: Anxiety

Childhood Anxiety Multimodal Study (CAMS)

- RCT non-OCD anxiety do
 - 12-weeks, n= 488
 - SAD, GAD, Social phobia
- All 3 active treatment arms:
superior responses vs. placebo



Walkup JT, Piacentini J, Birmaher B, et al. Cognitive behavioral therapy, sertraline, or a combination in childhood anxiety. N Engl J Med 2008;359(26):2753–66.

EVIDENCE for SSRI/SNRI to treat Pedi/Adol. Anxiety

Kodish I, Rockhill C, Ryan S, Varley C.
Pharmacotherapy for Anxiety Disorders in
Children and Adolescents. *Pediatr Clin N
Am* 58 (2011) 55–72.

Leonte, Puliafico, Na, Rynn. Up To Date:
Pharmacotherapy for Anxiety Disorders
in Children and Adolescents. Jan 2019.

| Medication | Trial type | Finding |
|--|---------------|---|
| Fluoxetine, Fluvoxamine, Paroxetine, Sertraline | RCT | Improved in OCD |
| Fluoxetine, Fluvoxamine, Sertraline, Venlafaxine, Duloxetine | RCT | Improved Generalized Anxiety Disorder |
| Fluoxetine, Fluvoxamine, Paroxetine, Sertraline, Venlafaxine | RCT | Improved Social Phobia or Social Anxiety |
| Fluoxetine, Sertraline | RCT | Improved Selective Mutism |
| Citalopram | Open-label | Improved OCD |
| SSRI and SNRI | Meta-analysis | Double response rate of placebo |

What I might do

Has either parent taken an SSRI?

Sertraline 6.25 mg PO QAM

Increase to 12.5 mg in 3 weeks if no problems, no improvement

Return 6 weeks

Ask school counselor to do weekly check-ins

What information about SSRIs do you give parents when prescribing?

SSRI Side Effects



CNS (agitation, disinhibition, restless, insomnia, sedation, headache, tremor, apathy)

Appetite, weight gain or loss, nausea, diarrhea

Sexual effects (dose related anorgasmia)

Side Effect: Activation

10.7% children
(2.1% adolescents)

Irritability, mild disinhibition,
increased restlessness and
insomnia



Strawn JR, Dobson ET, Giles LL. Primary Pediatric Care Psychopharmacology: Focus on Medications for ADHD, Depression, and Anxiety. *Curr Probl Pediatr Adolesc Health Care*. 2016;47(1):3-14.

Black Box
Warning 10/04:
All
antidepressants
for children and
adolescents

Possible new-onset
suicidal ideation
may be related to
behavioral
activation,
akathisia, mania, or
acute delirium

Twofold increase—
from 2% to 4%—
reporting suicidal
ideation or behaviors

No suicides occurred
in these trials

Review of 27 studies

Patients w/ depression, anxiety, OCD

Antidepressants vs. placebo

Rate suicidal ideation/attempts:
3% vs. 2%

Risk difference not statistically significant

No completed suicide

Depression Monitoring

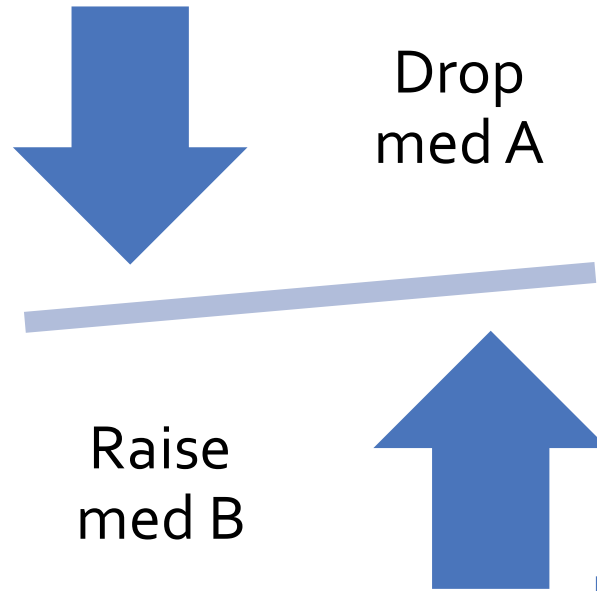
- FDA Recommendation
 - Wkly visits x 1 mo, every other wk x 1 mo, at 12 wks
- Reality
 - ~40% have <3 visits in the first three months
 - Fewer than 5% receive this level of supervision



MorratoEH, LibbyAM, OrtonHD, et al. Frequency of provider contact after FDA advisory on risk of pediatric suicidality with SSRIs. Am J Psychiatry 2008;165(1):42–50.

When SSRIs
don't work:

Cross Taper



| Date | Med | Dose |
|---------|-----------------|------|
| 1.1.22 | Sertraline | 25 |
| | Citalopram | 5 |
| 1.8.22 | Sertraline | 12.5 |
| | Citalopram | 10 |
| 1.15.22 | Sertraline | 6.25 |
| | Citalopram | 10 |
| 1.22.22 | Stop Sertraline | |

SSRI

| Brand name (generic name) | Age and approved indications | Off-label clinical indications | Metabolism | Preparation | Start dose per day | Target dose per day |
|---|--|--------------------------------------|--|--|--------------------------|-----------------------------------|
| Celexa[®] (citalopram) | No pediatric approval | Depression, anxiety, OCD | Weak IID6, IIIA ₄ , IIC ₁₉ | 10, 20, 40 mg 10 mg/5 mL | 5–10 mg | 10–40 mg |
| Lexapro[®] (escitalopram) | ≥12 yo: depression | Anxiety | Weak IID6, IIIA ₄ , IIC ₁₉ | 5, 10, 20 mg 5 mg/5 mL | 1.25–5 mg | 2.5–20 mg |
| Luvox[®] (fluvoxamine) | ≥8 yr: OCD | Depression, anxiety | IA ₂ , IIIA _{3–4} , IIC ₁₉ | 25, 50, 100 mg; 100, 150 mg ER | 12.5–25 mg | 25–200 mg |
| Paxil[®] (par oxetine) | No ped. approval; not recommended for depression < 18 yr | Anxiety, OCD | IID6, IIIA ₄ | 10, 20, 30, 40 mg; 12.5, 25, 37.5 mg CR 10 mg/5 mL | 5–10 mg | 10–60 mg |
| Prozac[®] (fluoxetine) | ≥ 8 yr: depression ≥7 yr: OCD | Anxiety | IID6, IIIA _{3–4} , IIC ₁₉ | 10, 20, 40 mg 20 mg/5 mL | 2.5–10 mg | 5–20 mg MDD 20–60 mg OCD |
| Zoloft[®] (sertraline) | ≥6 yr: OCD | Depression, anxiety | Weak IID6, IIC ₁₉ | 25, 50, 100 mg 20 mg/mL | 12.5–50 mg | 25–200 mg |

Buspirone (Buspar) in HFA

- (2018) Retrospective Chart Review of Buspirone for the Treatment of Anxiety in Psychiatrically Referred Youth with High-Functioning Autism Spectrum Disorder
- 31 patients
- Significant improvement in anxiety symptoms ($\text{CGI-I} \leq 2$) was observed in 58% and mild improvement ($\text{CGI-I} = 3$) in 29% of the HF-ASD patients

Desvenlafaxine (Pristiq)

- Approval- adults only
- (2017) Low and high exposure desvenlafaxine groups did not demonstrate efficacy for the treatment of MDD in children and adolescents in this double-blind, placebo-controlled trial.
- Desvenlafaxine (20-50 mg/day) was generally safe and well tolerated with no new safety signals identified in pediatric patients with MDD in this study.

Take Home



Initiate at lowest dose
(1/4-1/2 smallest tablet)



Start low, increase slowly

Over a week?
Every 3 weeks?



Clear benefit at 2-4 weeks



Most side effects resolve in first few weeks

Thank you!

Promoting Optimal Development: Screening for Behavioral and Emotional Problems

Carol Weitzman, MD, FAAP, Lynn Wegner, MD, FAAP, the SECTION ON DEVELOPMENTAL AND BEHAVIORAL PEDIATRICS, COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH, COUNCIL ON EARLY CHILDHOOD, AND SOCIETY FOR DEVELOPMENTAL AND BEHAVIORAL PEDIATRICS

| | | | | | | |
|------------------------------------|--|--------|----------|---|---|---|
| School-age and adolescent children | Strengths and Difficulties Questionnaire | 3–17 y | 25 items | Parent/teacher 4–10-y-old; parent/teacher 11–17-y-old; youth self-report 11–17-y-old; parent/teacher/self follow-up forms available | Variable across cultural groups; sensitivity: 63%–94%, specificity: 88%–96%; available in >70 languages | http://www.sdqinfo.org |
| | Pediatric Symptom Checklist—17 | 4–16 y | 17 items | Parent completed; youth self-report >10 y; pictorial version available | Variable psychometrics for detection of psychiatric problems; available in multiple languages | http://www.massgeneral.org/psychiatry/services/psc_home.aspx |
| | Pediatric Symptom Checklist—35 | 4–16 y | 35 items | Parent completed; youth self-report >10 y; pictorial version available | Sensitivity: 80%–95%, specificity: 68%–100%; available in multiple languages | http://www.massgeneral.org/psychiatry/services/psc_home.aspx |

[https://publications.aap.org/pediatrics/article/135/2/384/33387/
Promoting-Optimal-Development-Screening-
for?autologincheck=redirected](https://publications.aap.org/pediatrics/article/135/2/384/33387/Promoting-Optimal-Development-Screening-for?autologincheck=redirected)









Workbooks and Books for Children

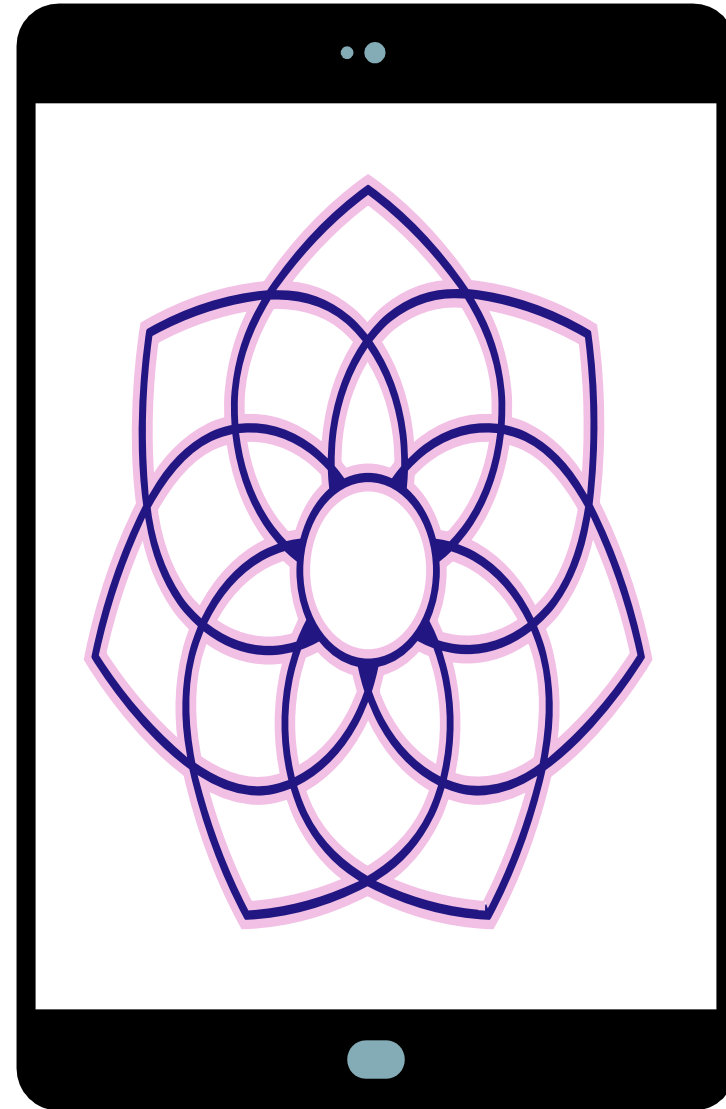
1. Anxiety Relief Workbook for Kids: 40 Mindfulness, CBT and ACT Activities to Find Peace from Anxiety and Worry (Agnes Selinger, PhD, ages 6-9)
2. Starving the Anxiety Gremlin for Children aged 5-9 (Kate Collins-Donnelly)
3. Starving the Anger Gremlin: A Cognitive Behavioral Therapy Workbook on Anger Management for Young People (Kate Collins-Donnelly 10-16 yrs)

Free Workbooks for Teens

1. <https://dochub.com/mistybonta/B5LgrGvRo7x3EZ2wgMYq6j/the-anger-workbook-for-teens-pdf?dt=aF-MCWO2EVkX62GPzskw&pg=19> (The Anger Workbook for Teens, 2nd Edition, Raychelle Cassada Lohmann, PhD LPC)
2. <http://www.tri-co-cac.org/files/social-emotional-learning-workbook-for-teens.pdf> (Social Emotional Work Book for teens, free one-user license)

Mindfulness Apps

-  Calm
-  Headspace (for kids)
-  Smiling Mind
-  Three Good Things: A Happiness Journal
-  Insight Timer
-  Dreamy Kid
-  Mindful Powers
-  Stop, Breathe and Think Kids



Very useful references as resources

1. Southammakosane C, Schmitz K. Pediatric Psychopharmacology for Treatment of ADHD, Depression, and Anxiety. *Pediatrics* Aug 2015, 136 (2) 351-359.
2. Strawn, Dobson, Giles. Primary Pediatric Care Psychopharmacology: Focus on medications for ADHD, depression and anxiety. *Curr Probl Pediatr Adolesc Health Care*. 2017 January ; 47(1): 3–14.
3. Sharma, A. (2018). Update on common psychiatric medications for children. *Pediatric Annals*, 47(8), 311-316.
4. Fung, et al. Pharmacologic Treatment of Severe Irritability and Problem Behaviors in Autism: A Systematic Review and Meta-analysis. *Pediatrics* Feb 2016, 137 (Supplement 2) S124-S135.

Additional References

1. Chhangani et al. Pharmacology of Sleep Disorders in Children and Adolescents. *Pediatr Clin N Am* 58 (2011) 273–291.
2. Consensus Development Conference on Antipsychotic Drugs and Obesity and Diabetes. American Diabetes Association, American Psychiatric Association, American Association of Clinical Endocrinologists, and North American Association for the Study of Obesity. *Diabetes Care* February 2004 vol. 27 no. 2 596-601.
3. Margari et al. Tolerability and safety profile if risperidone in a sample of children and adolescents. *International Clin Psychopharm* 28 (2013) 177-183.
4. Mohatt et al. Treatment of Separation, Generalized, and Social Anxiety Disorders in Youths. *Am J Psychiatry* 2014;171:741-748.
5. Ceranoglu TA, Wozniak J, Fried R, Galdo M, Hoskova B, DeLeon Fong M, Biederman J, Joshi G. A Retrospective Chart Review of Buspirone for the Treatment of Anxiety in Psychiatrically Referred Youth with High-Functioning Autism Spectrum Disorder. *J Child Adolesc Psychopharmacol*. 2019 Feb;29(1):28-33.