



# ANXIOUS MOTHER, ANXIOUS CHILD

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Dr Eunice Wong, MD

(George Washington Univ., USA)

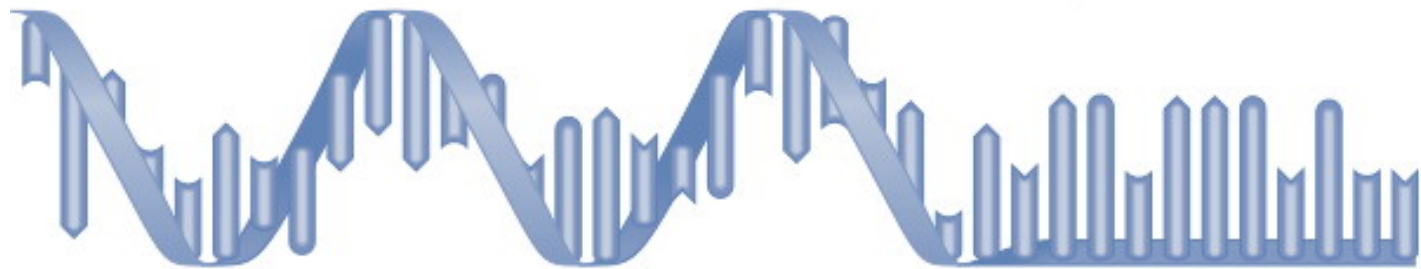
Diplomate, American Board of Pediatrics

LMCHK



**DNA**  
Self-replicating  
molecule

Each base determines one base of the RNA.



**RNA**  
Copy of one strand  
of the DNA

A triplet of bases determines  
one amino acid.



...



**Protein**  
Some proteins become  
part of the body's structure.  
Others are enzymes that  
control the rate of chemical  
reactions.

# Overproduction and Pruning

- 3 critical phases:

In utero, 0-3 years, 10-13 years old

- Results in significant increase in the number of neurons and synapses
- Exuberant growth during these 3 phases gives the brain enormous potential

# The Genetics of Behavior

- **Heritability** refers to how much characteristics depend on genetic differences
- **Multiplier effect** – genetic tendencies that guide behavior will result in a change in the environment that magnifies the original tendency



# DSM-IV Diagnostic Criteria

- Acute Stress Disorder
- Generalized Anxiety Disorder

# Meta-Analysis


- Association between mothers' depression and children's behavioral problems or emotional functioning
- 193 studies
- Maternal depression was significantly related to
  - High levels of internalizing, externalizing and general psychopathology
  - High level of Negative affect/ behavior
  - Low level of Positive affect/ behaviors

Goodman S.H., et al. Maternal Depression and Child Psychopathology: A Meta-Analytic Review. *Clini Child Fam Psychol Rev.* 4 Nov, 2010

# Results

- Anxious mothers were:
  - **Less warm** and positive in their interactions with their children
  - **Less granting of autonomy**
  - More critical and **catastrophizing**
- Maternal anxiety status: the primary predictor of **maternal warmth** during interactions
- Child anxiety status: was most predictive of maternal granting of **autonomy behavior**

J Shannon, E. Whaley, Allison Pinto, and Marian Sigman. Characterizing Interactions Between Anxious Mothers and Their Children. *Journal of Consulting and Clinical Psychology* 1999, Vol. 67, No. 6, 826-836

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- **Maternal behaviors** during interactions-- **most salient predictors of child anxiety**, contributing more than maternal psychopathology or ongoing strain to the development of child anxiety

J Shannon, E. Whaley, Allison Pinto, and Marian Sigman. Characterizing Interactions Between Anxious Mothers and Their Children. *Journal of Consulting and Clinical Psychology* 1999, Vol. 67, No. 6, 826-836

# Interactions between Mothers and Children

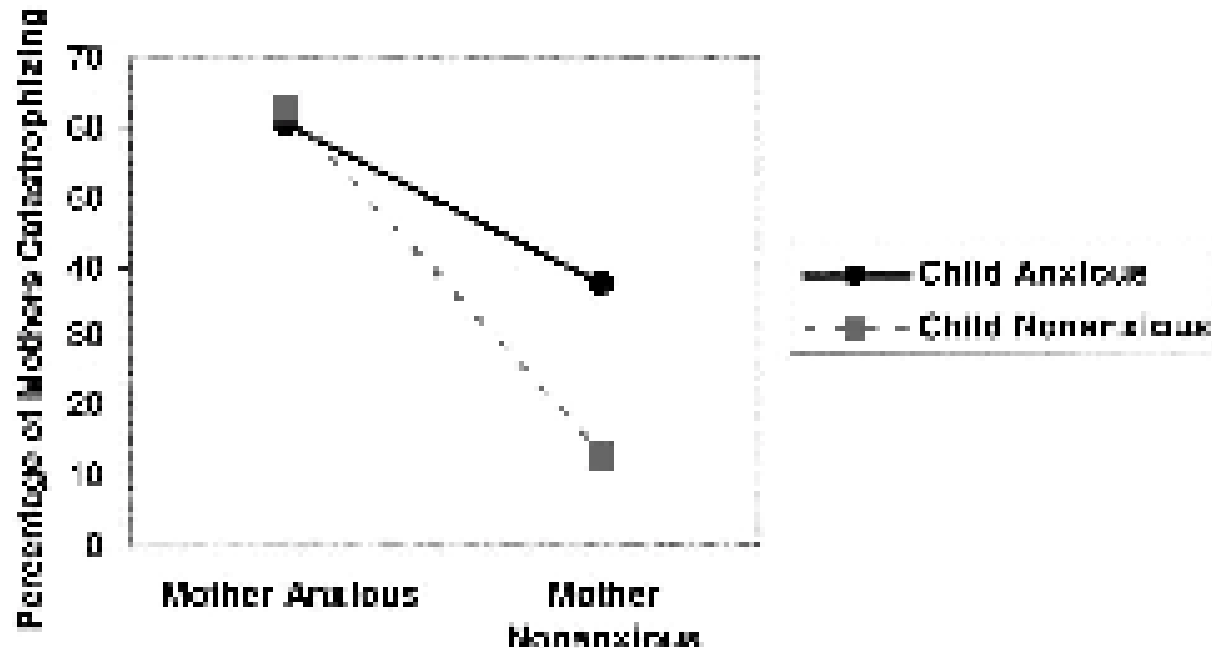
- Hypotheses: to test the relationships of maternal behaviors to anxiety status in either dyad member
- A total of 68 pairs of mother-child dyads
- Age of children 7 to 15 year-old
- Female= 33
- Male= 35
- Mean age was 10.7 years
- 68 mother–child dyads

Phoebe S. Moore, Shannon E. Whaley, and Marian Sigman. Interactions Between Mothers and Children: Impacts of Maternal and Child Anxiety. *Journal of Abnormal Psychology*, 2004, Vol. 113, No. 3, 471–476


## 3 maternal behaviors

- **Maternal warmth** would be more related to maternal anxiety
- **Granting of autonomy** would be more related to child anxiety
- **Maternal catastrophizing** would be associated with both mother and child anxiety, and would be particularly high in the both anxious group

# Children of Anxious vs Non-anxious Mothers

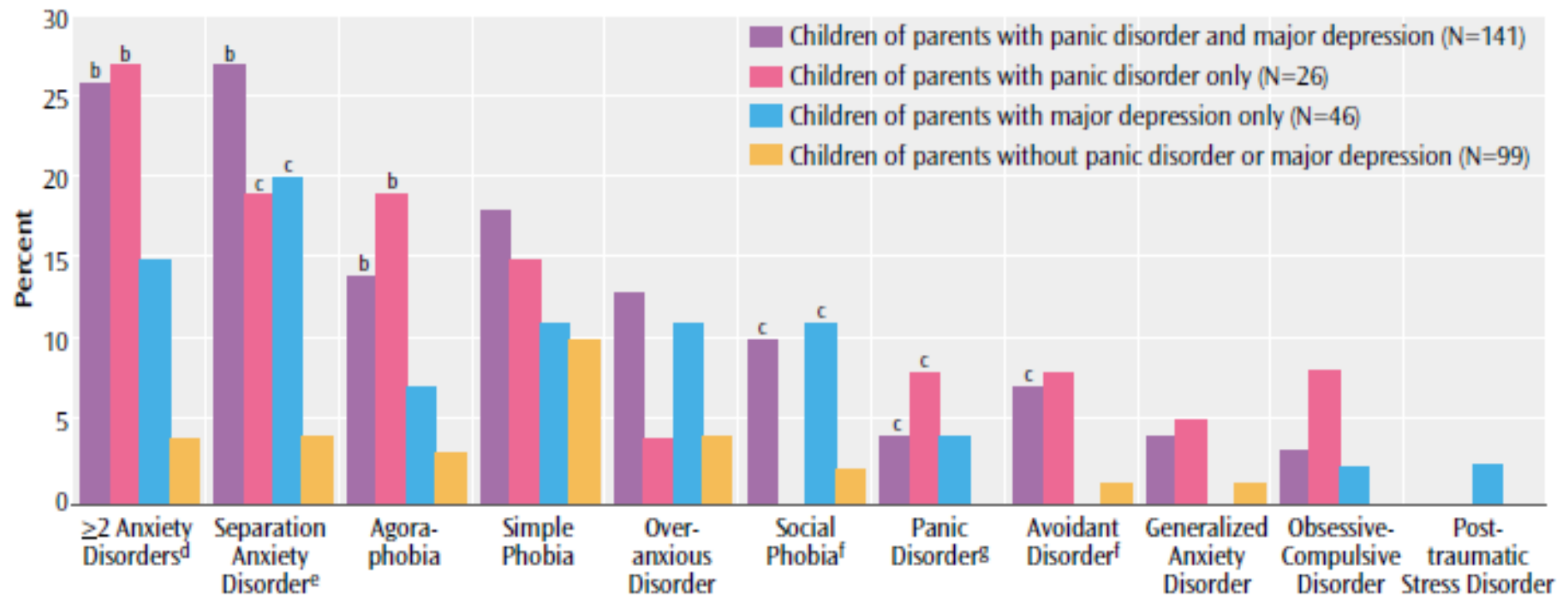


Phoebe S. Moore, Shannon E. Whaley, and Marian Sigman. Interactions Between Mothers and Children: Impacts of Maternal and Child Anxiety. *Journal of Abnormal Psychology*, 2004, Vol. 113, No. 3, 471–476

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- Mothers of anxious children, regardless of their own anxiety, were:
    - Less warm (  $p < .05$ ) toward their children
    - Granted less autonomy (  $p < .01$ )
    - More likely to catastrophize (  $p < .01$ )

Phoebe S. Moore, Shannon E. Whaley, and Marian Sigman. Interactions Between Mothers and Children: Impacts of Maternal and Child Anxiety. *Journal of Abnormal Psychology*, 2004, Vol. 113, No. 3, 471–476

## The Association of Parents' Panic and Depressive disorders and their Children's rate of Anxiety disorders

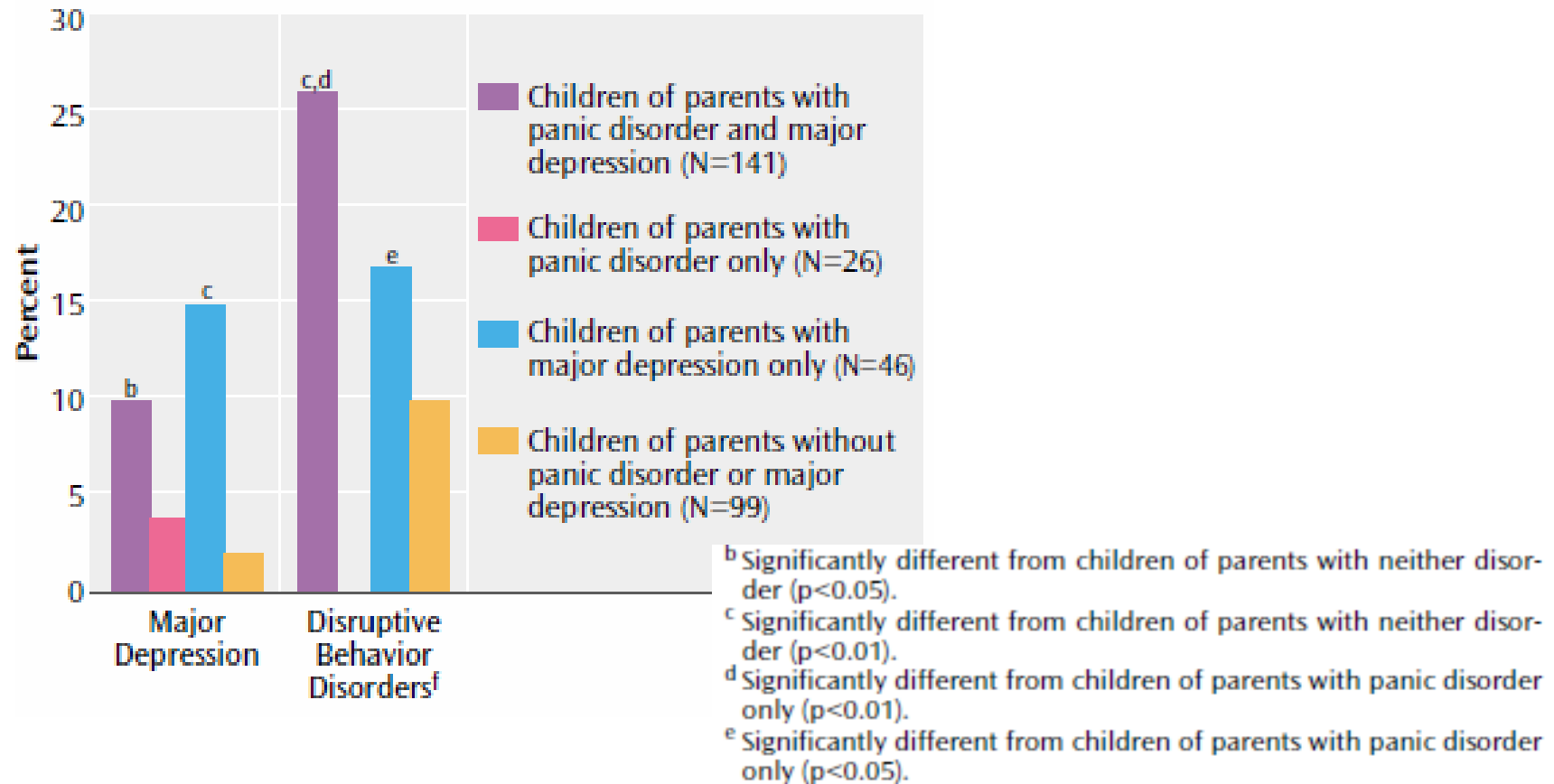


<sup>b</sup> Significantly different from children of parents with neither disorder ( $p < 0.01$ ).  
<sup>c</sup> Significantly different from children of parents with neither disorder ( $p < 0.05$ ).

Biederman, J., et al. (2001). Patterns of psychopathology and dysfunction in high-risk children of parents with panic disorder and major depression. *American Journal of Psychiatry*. 158 (1), 49-57.

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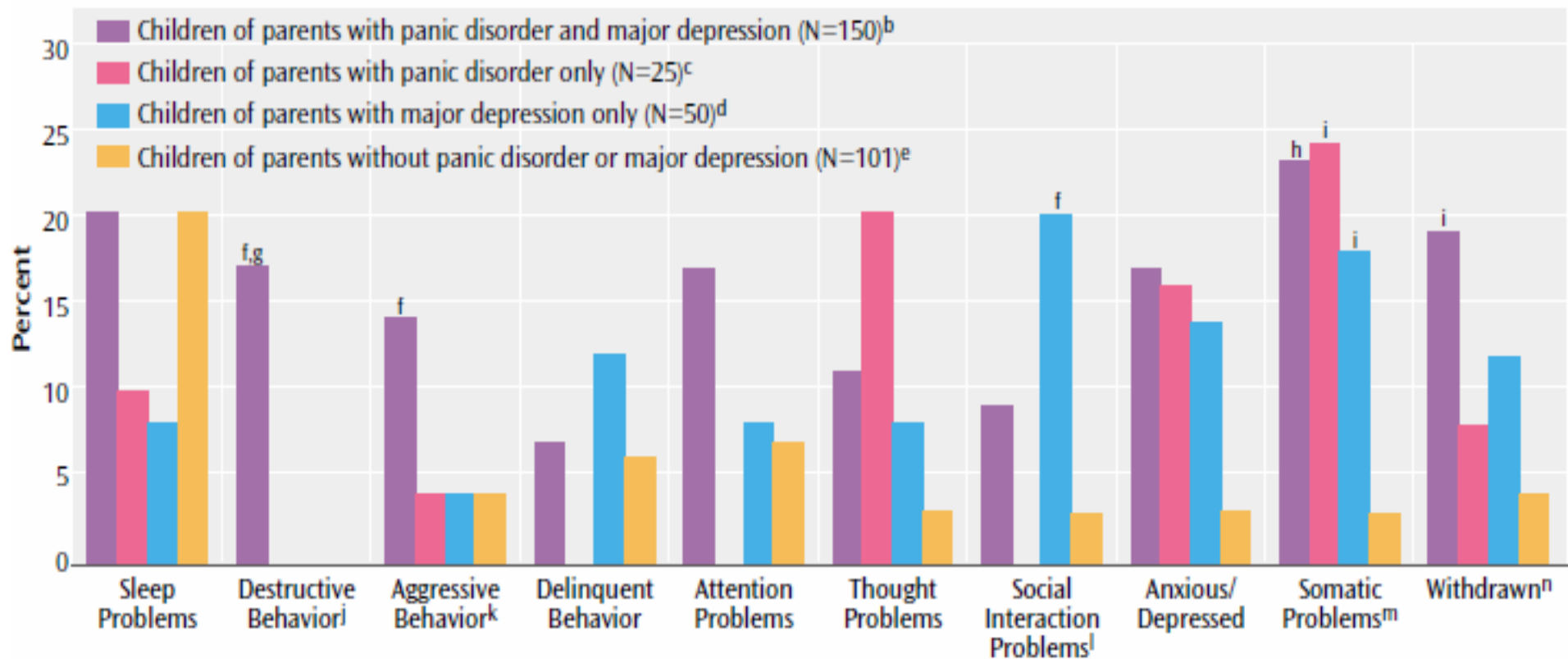
## Rates of Major Depression and Disruptive behavior Disorders in Children of Parents with Both PD and MDD. PD only. MDD only, or Neither Disorder



Biederman, J., et al. (2001). Patterns of psychopathology and dysfunction in high-risk children of parents with panic disorder and major depression. *American Journal of Psychiatry*. 158 (1), 49-57.

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## Rates of Impairment in Functional Areas Measured by the Child Behavior Checklist in Children of Parents with Both PD and MDD, PD only, MDD only, or Neither Disorder



<sup>f</sup> Significantly different from children of parents with neither disorder ( $p < 0.05$ ).

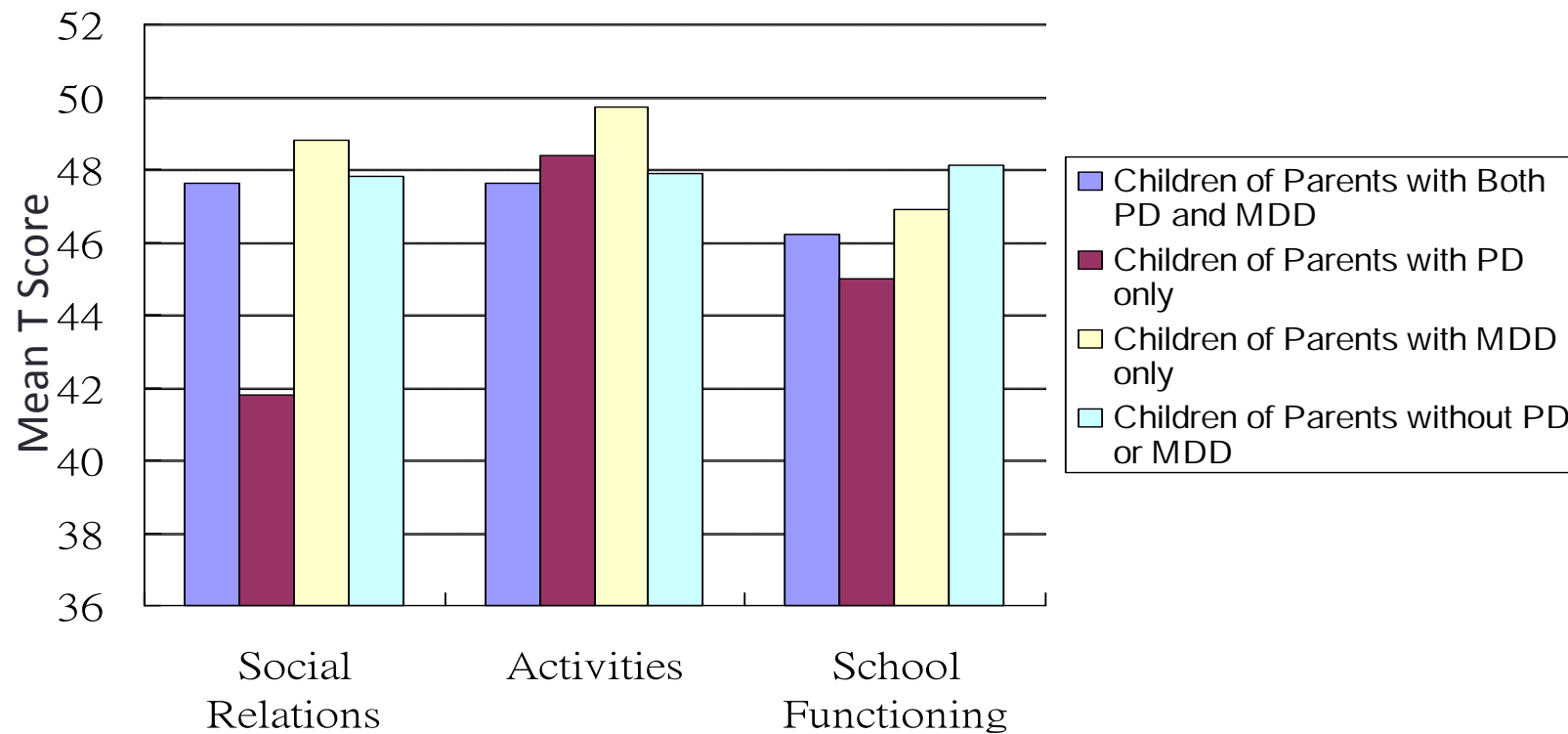
<sup>g</sup> Significantly different from children of parents with major depression only ( $p < 0.05$ ).

<sup>h</sup> Significantly different from children of parents with neither disorder ( $p < 0.001$ ).

<sup>i</sup> Significantly different from children of parents with neither disorder ( $p < 0.01$ ).

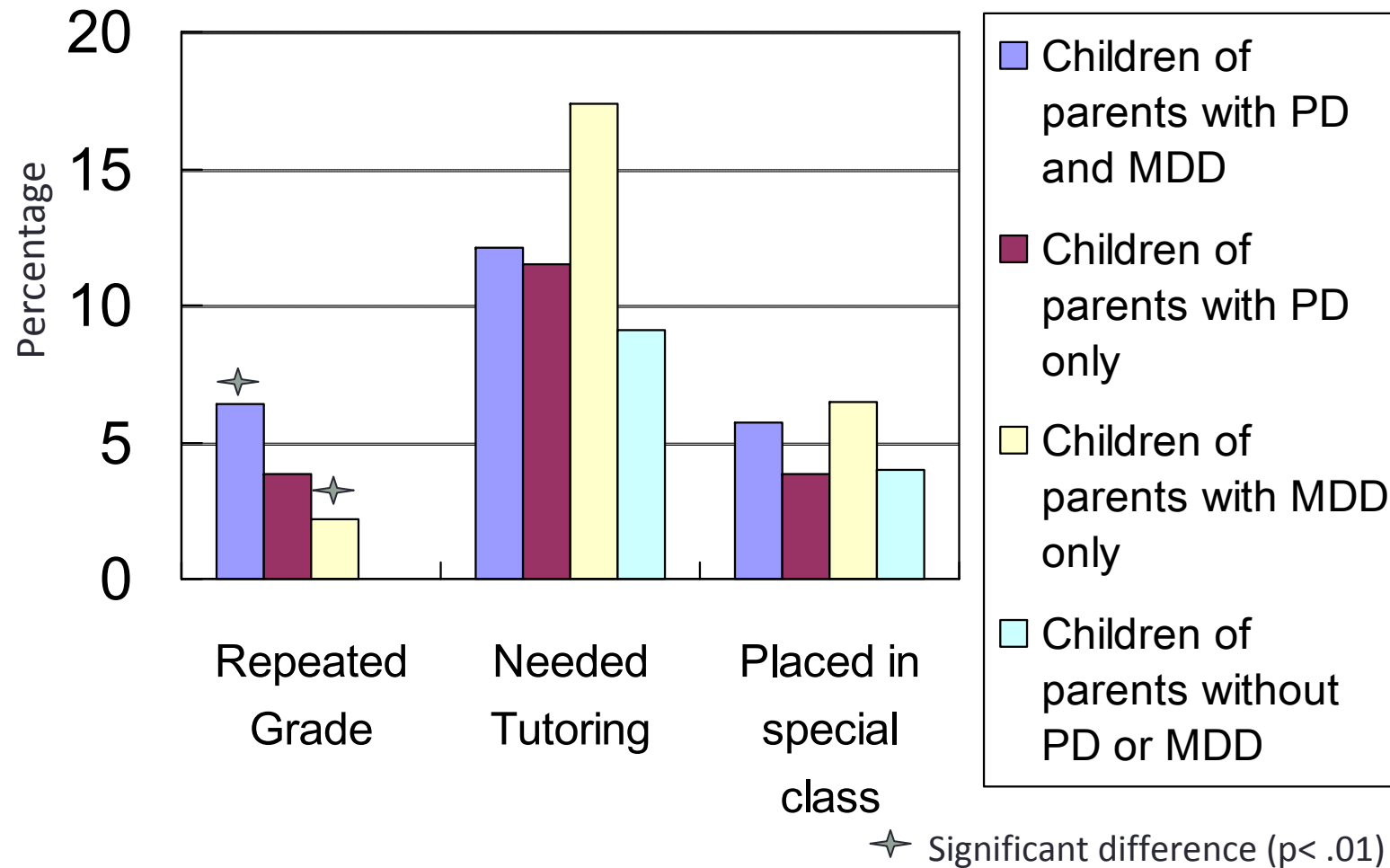
Biederman, J., et al. (2001). Patterns of psychopathology and dysfunction in high-risk children of parents with panic disorder and major depression. *American Journal of Psychiatry*. 158 (1), 49-57.

## Mean T Scores of the Child Behavior Checklist Measuring Social Competence in Children of Parents with Both PD and MDD, PD only, MDD only, or Neither Disorder



Biederman, J., et al. (2001). Patterns of psychopathology and dysfunction in high-risk children of parents with panic disorder and major depression. *American Journal of Psychiatry*. 158 (1), 49-57.

## Percentage of School Functioning Characteristics observed in Children of Parents with Both PD and MDD, PD only, MDD only, and Neither Disorder



Biederman, J., et al. (2001). Patterns of psychopathology and dysfunction in high-risk children of parents with panic disorder and major depression. *American Journal of Psychiatry*. 158 (1), 49-57.

# A Star\* D Ancillary Study

- Hypothesis: Children of depressed mothers with Axis I disorders, would have a higher prevalence of psychiatric disorder
- Compared with children with mothers without those disorders
- And Compared with children with depressed mothers with anxiety would increase the odds of anxiety disorders in their children
- Daniel J. Pilowsky, et al. Children of Depressed Mothers: A Star\* D Ancillary Study. J. Clin Psychiatry 67:1, January 2006

# A Star\* D Ancillary Study

- START\*D Trial:
- A multi-site study
- Women 25-60 years, n= 151 mother-child pairs
- Children aged 7-17 years, living at least 50% with their mothers
- Information was obtained from both the mothers and their children

# Assessment of Mothers

- Baseline assessments of mothers: Hamilton Rating Scale for Depression-D<sub>17</sub>
- Ham-D<sub>17</sub> scores:
  - 14-21: moderate depression
  - $\geq 22$ : severe depression
  - Mothers also completed 30-item Inventory of Depressive Symptomatology-Clinician Rating (IDS-C<sub>30</sub>)

Daniel J. Pilowsky, et al. Children of Depressed Mothers: A Star\* D Ancillary Study. J. Clin Psychiatry 67:1, January 2006

- Mothers also fill in Social Adjustment Scale Self-Report (SAS-SR)
- 6 major areas of social functioning:
  1. Work (Employment, Housework, student work)
  2. Social and Leisure activities
  3. Relationship with extended family
  4. Primary relationship
  5. Parental role
  6. Role within the family unit

Daniel J. Pilowsky, et al. Children of Depressed Mothers: A Star\* D Ancillary Study.  
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# Assessment of Children

- K-SADS-PL: Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Life-time Version (affective disorders, anxiety, disruptive behaviors)
- C-GAS: Children's Global Assessment Scale
- CBCL: Child Behavior Checklist (activities, socialization, school functioning)

Daniel J. Pilowsky, et al. Children of Depressed Mothers: A Star\* D Ancillary Study.  
J. Clin Psychiatry 67:1, January 2006

# Results

- Prepubertal onset: Anxiety

Disruptive behaviors

- Onset in adolescence: Depression

- Daniel J. Pilowsky, et al. Children of Depressed Mothers: A Star\* D Ancillary Study. J. Clin Psychiatry 67:1, January 2006

# Results

- Maternal atypical depression
- Associated with long term interpersonal rejection sensitivity

Daniel J. Pilowsky, et al. Children of Depressed Mothers: A Star\* D Ancillary Study. J. Clin Psychiatry 67:1, January 2006

# Results

- Maternal irritable depression
- Associated with children's disruptive behaviors and anger outburst

Daniel J. Pilowsky, et al. Children of Depressed Mothers: A Star\* D Ancillary Study. J. Clin Psychiatry 67:1, January 2006

# Results

Maternal depression with suicidal attempt	And with panic disorder	Panic disorder + Agoraphobia
Offspring with Depression	3 fold increase	8 fold increase
Offspring lifetime disorders		8 fold increase in lifetime depression 4 fold increase in lifetime anxiety

Daniel J. Pilowsky, et al. Children of Depressed Mothers: A Star\* D Ancillary Study. J. Clin Psychiatry 67:1, January 2006

## Children of severely depressed mothers

Children	34% with a current psychiatric disorder	45% lifetime psychiatric disorder
Disruptive behavior	22%	29%
Anxiety disorder	16%	20%
Depressive disorder	10%	19%

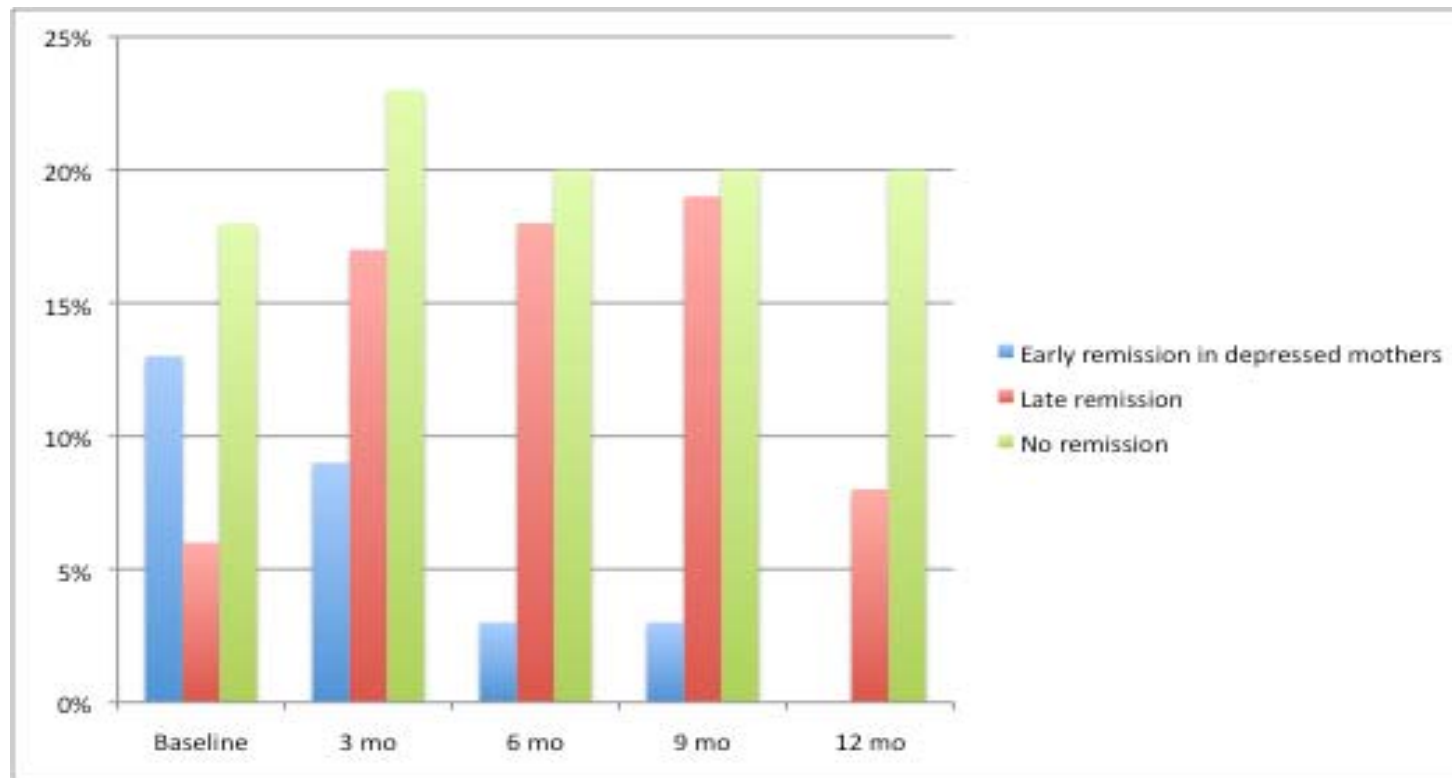
Daniel J. Pilowsky, et al. Children of Depressed Mothers: A Star\* D Ancillary Study. J. Clin Psychiatry 67:1, January 2006

Adolescents with Depression	Without maternal Depression	With maternal Depression in STAR*D Child trial
Lifetime Depression	12%	50%
Lifetime comorbidity with	21% Disruptive behavioral disorder	31% Lifetime Anxiety

Daniel J. Pilowsky, et al. Children of Depressed Mothers 1 year after initiation of maternal treatment: Finds from the STAR\*D Child Study

# STAR\*D

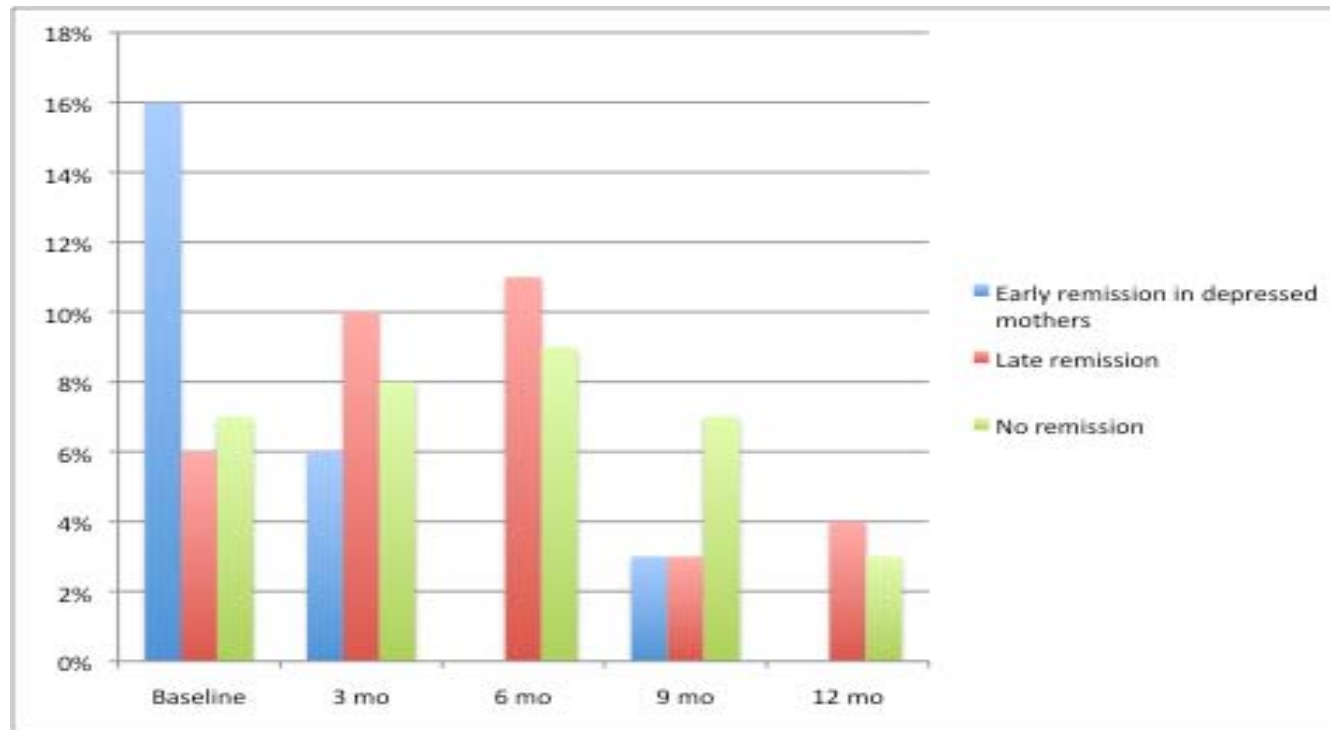
## Anxiety in Children One year after Tx of mothers



- Daniel J. Pilowsky, et al. Children of Depressed Mothers 1 year after initiation of maternal treatment: Finds from the STAR\*D Child Study

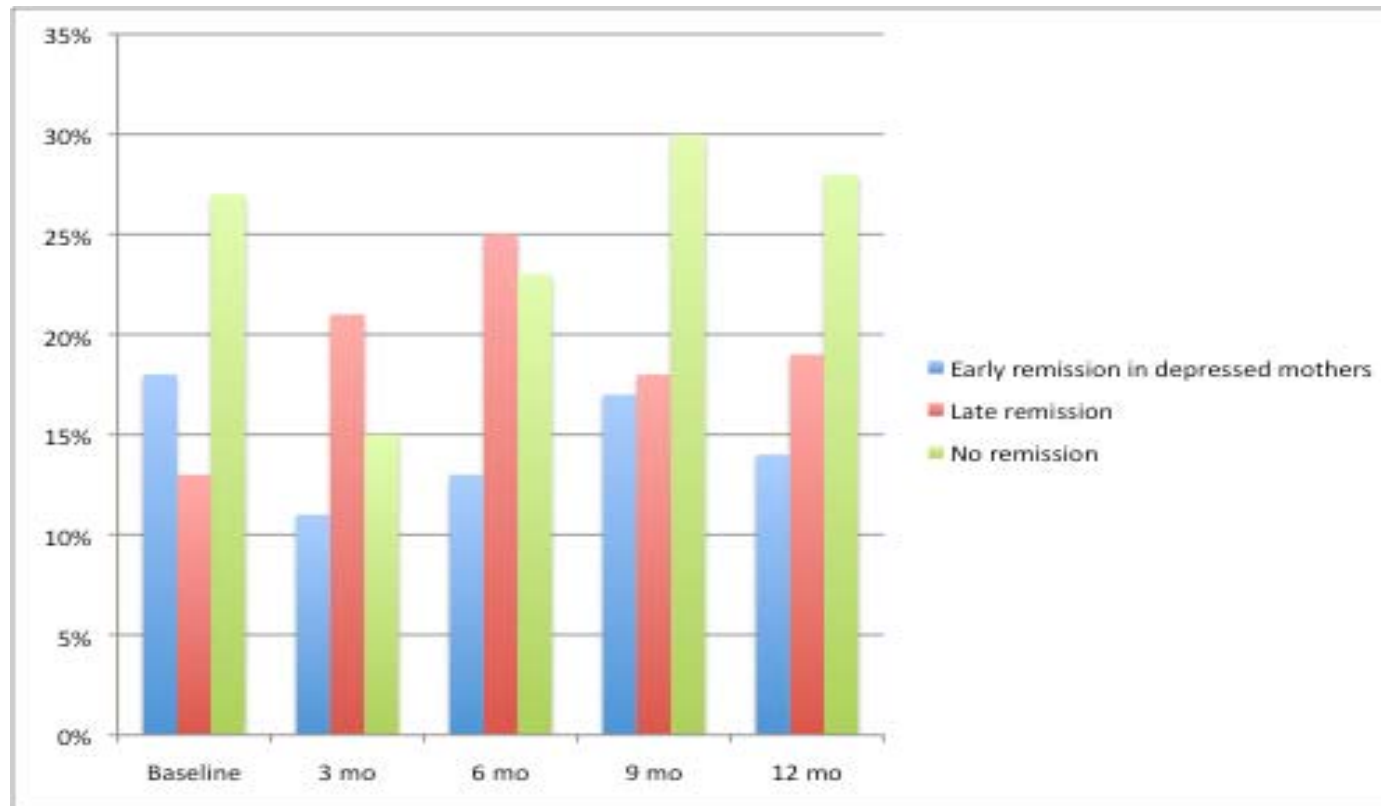
# STAR\*D

## Depression in Children One year after Tx of mothers



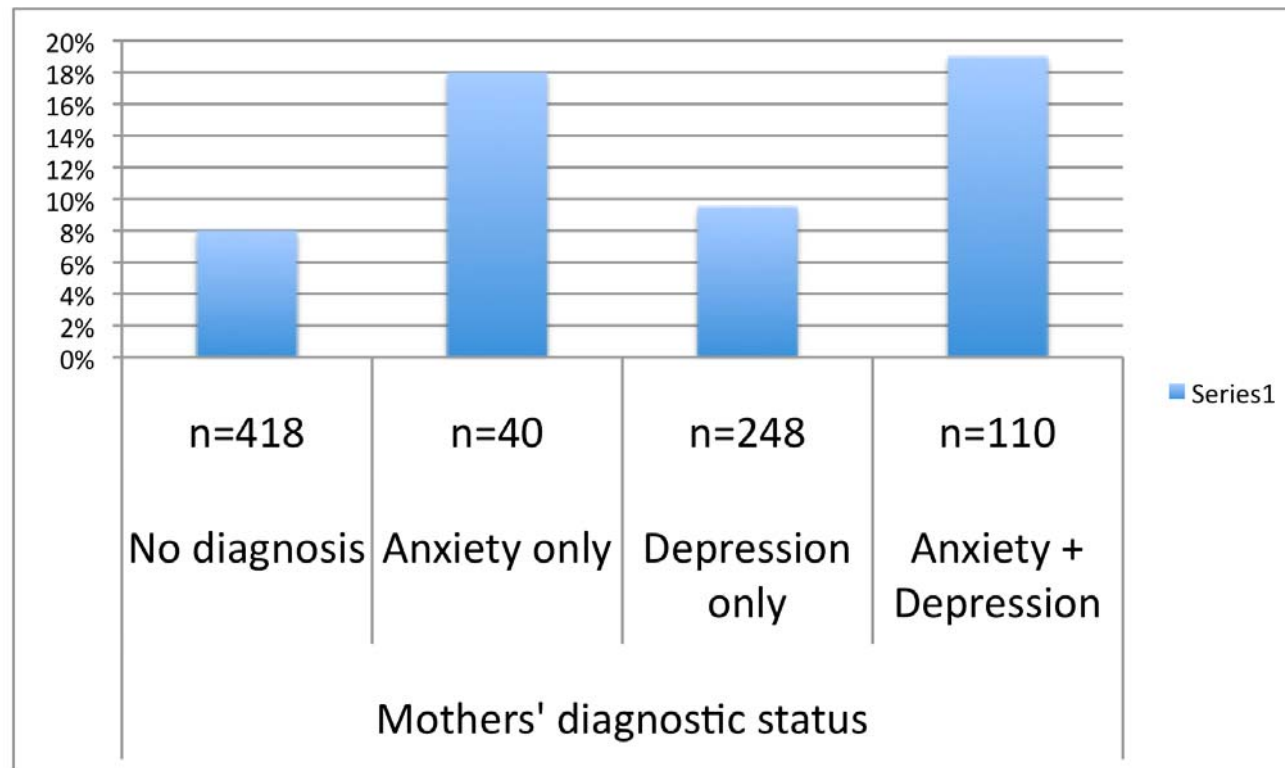
- Daniel J. Pilowsky, et al. Children of Depressed Mothers 1 year after initiation of maternal treatment: Finds from the STAR\*D Child Study

# STAR\* D Disruptive Behavioral Disorder in Children---One Year after Tx of Mothers



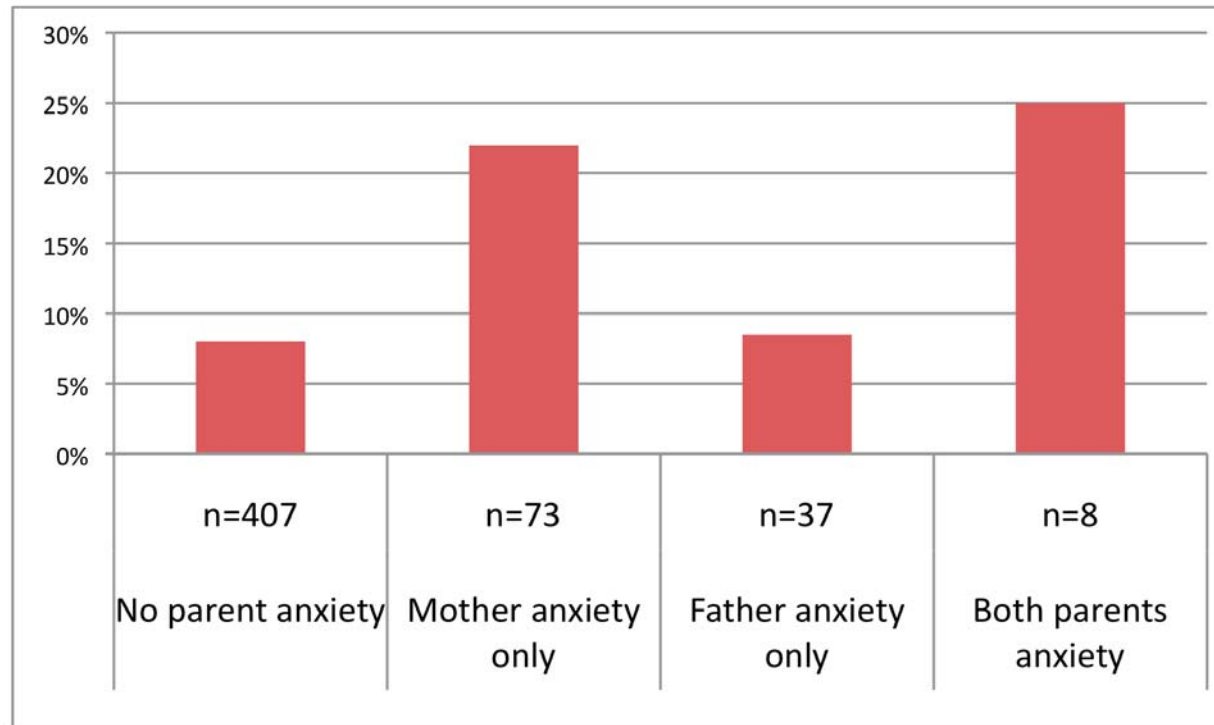
- Daniel J. Pilowsky, et al. Children of Depressed Mothers 1 year after initiation of maternal treatment: Finds from the STAR\*D Child Study

# Children with Anxiety Disorders



McClure EB, Brennan PA, Hammen C, et al. Parental Anxiety Disorders, Child Anxiety Disorders and the Perceived Parent-Child Relationship in an Australian High Risk Sample. *J. Abnorm. Child Psycho.* 2001; 29:1-10

# Children with Anxiety Disorders



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# Results

- Anxiety disorder (with no depression) in Mothers best predicts Anxiety disorder in their Children
- Depression (no anxiety disorder) in Mothers do not significantly increase the risk of Anxiety disorder in children
- Paternal anxiety do not significantly predict Children's Anxiety disorder

McClure EB, Brennan PA, Hammen C, et al. Parental Anxiety Disorders, Child Anxiety Disorders and the Perceived Parent-Child Relationship in an Australian High Risk Sample. *J. Abnorm. Child Psycho.* 2001; 29:1-10

# Summary of the study

- Anxiety disorders are familial
- Patterns of transmission specific to mothers and their children
- Children with anxiety disorders perceive their parents as more psychologically controlling
- Offspring-rated Psychological Control does not account for the effects of maternal anxiety disorder on offspring anxiety disorder outcomes

McClure EB, Brennan PA, Hammen C, et al. Parental Anxiety Disorders, Child Anxiety Disorders and the Perceived Parent-Child Relationship in an Australian High Risk Sample. *J. Abnorm. Child Psycho.* 2001; 29:1-10

# WHAT NEXT?

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The role of Oxytocin

The role of Epigenetics