



Boston University
School of Medicine

NCTSN



PTSD in Children with Burns: State of the Science

Glenn Saxe, MD
Chairman,
Child and Psychiatry Section,
Boston University School of Medicine

Consulting Staff
Shriners Burns Hospitals Boston



The Team

Glenn Saxe
Frederick Stoddard
Karestan Koenen
Alisa Miller
Erin Hall
David Bartholomew
Robert Casey
Michelle Bosquet
Julie Kaplow
Meagan Geary
Katie Bedard
Steve Moulton
Robert Sheridan
Carlos Lopez
Rachel Yehuda
Stephen Porges
Daniel King
Lynda King



The Funders

NIMH
RO1 MH 57370

NIMH
RO1 MH 63247

SAMHSA
U79 SM54305



The Questions

- 1) How many burned children get PTSD?
- 2) What are the risk factors for getting PTSD?
- 3) Can children at risk be identified early?
- 4) Can the risk of PTSD be diminished with early intervention?
- 5) Can PTSD be treated once it is established?

The Questions

1) How many burned children get PTSD?

309.81 PTSD Definition

The development of characteristic symptoms, following exposure to a traumatic stressor involving direct personal experience or witnessing another persons' experience of:

- Actual or threatened death
- Actual or threatened serious injury
- Threat to physical integrity

Post Traumatic Stress Disorder

- Characterized by:
 - Re-experiencing the event
 - Intrusive thoughts, nightmares, or flashbacks that recollect traumatic images and memories
 - Avoidance and emotional numbing
 - Flattening of affect, detachment from others, loss of interest, lack of motivation, and constant avoidance of any activity, place, person, or event associated with the traumatic experience

Demographics

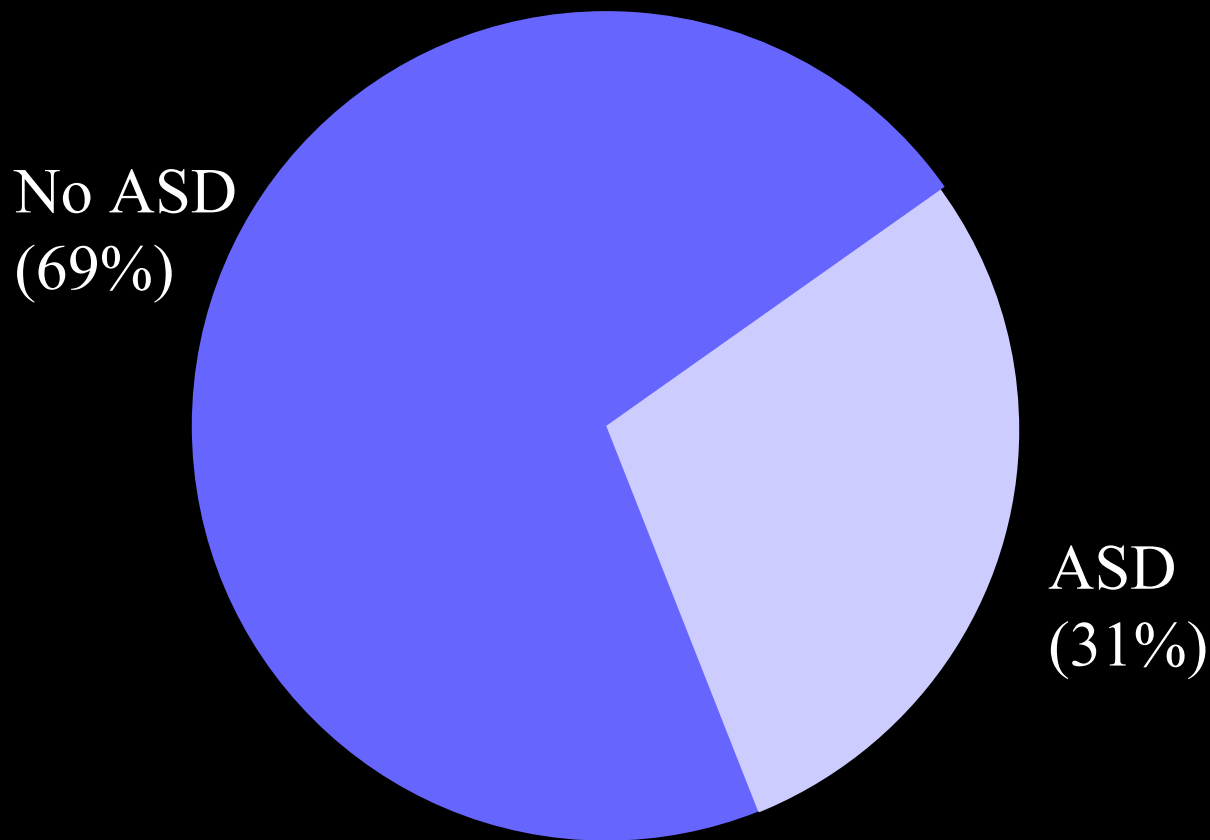
Table 1. Demographic Variables

	Burn (n=72)	Non-Burn Injury (n=72)
Gender		
Female	33%	31%
Male	67%	69%
Race		
African American	13%	49%
Asian		3%
Hispanic	6%	19%
White	77%	28%
Socio-economic status		
Low (0 - 30)		26%
Middle (31 – 70)		28%
High (71 – 100)		7%
Undetermined		35%

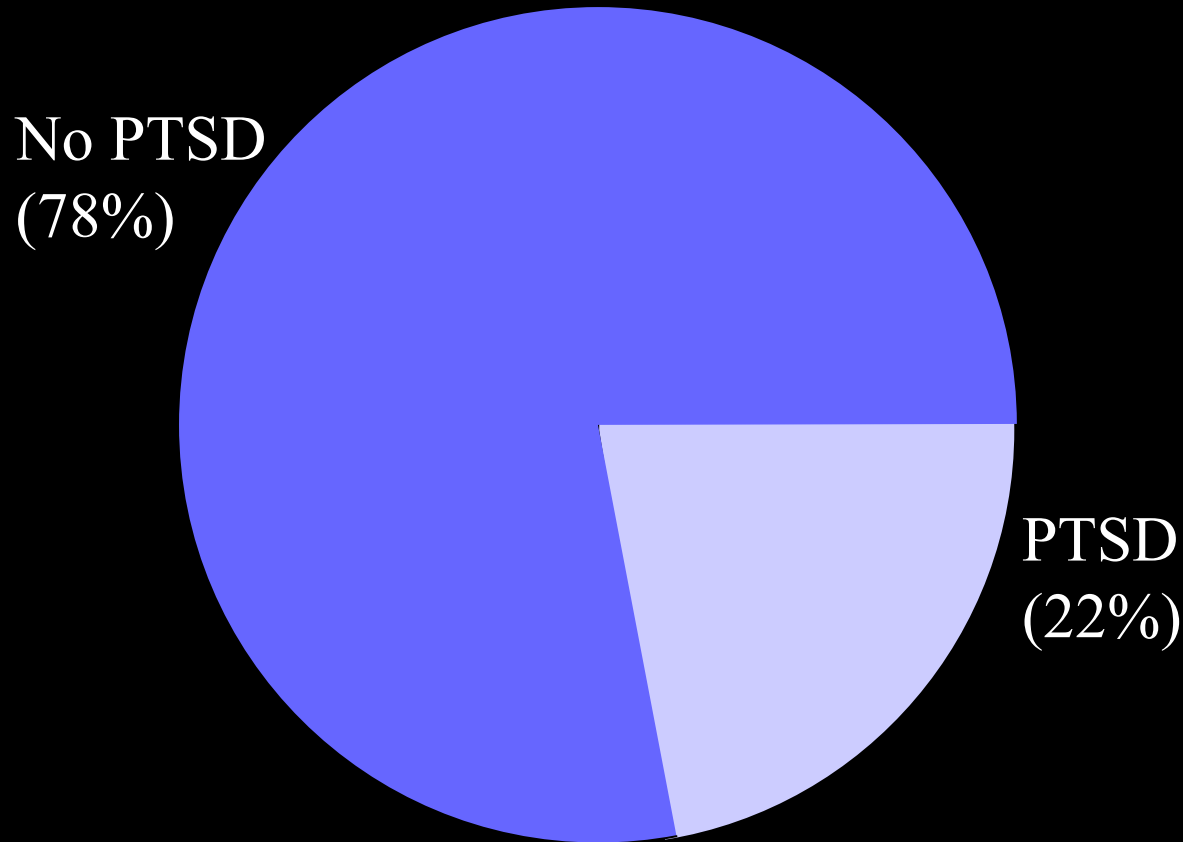
Demographic Information (n = 72)

- 67.1% of the subjects were male, while 32.9 % were female.
- The mean age of the sample was 11.17 years (S.D = 3.55).
- The average length of hospital stay was 47 days (range = 2 to 110 days).
- The mean body surface area burned was 18.01 % (range = 1% to 85 %).
- 77% of the subjects were White, 13% were African-American, 6% were Hispanic, 2% were Native-American and 2% were Multi-Racial.

Percentage of Children Displaying Acute Stress Disorder (ASD) At Time of Admission (n=61)



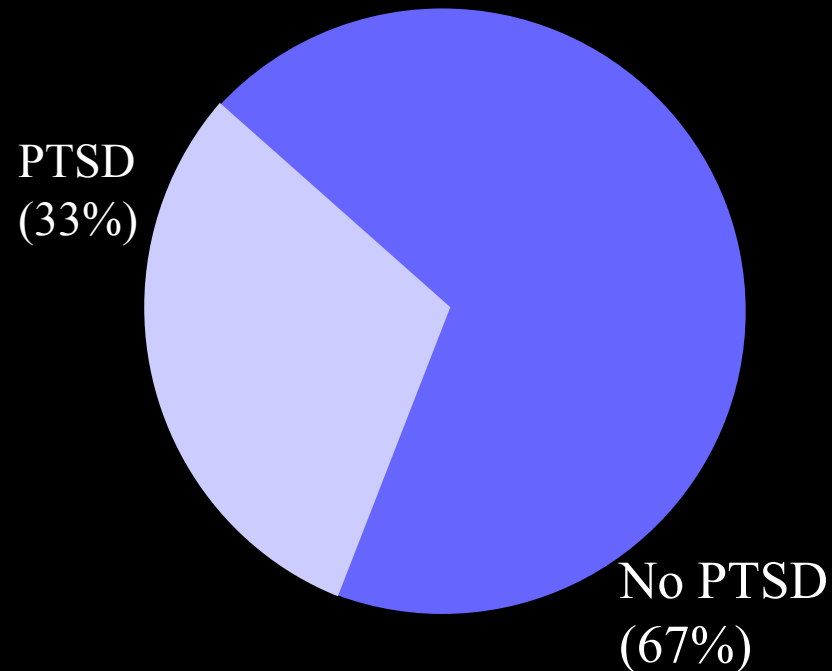
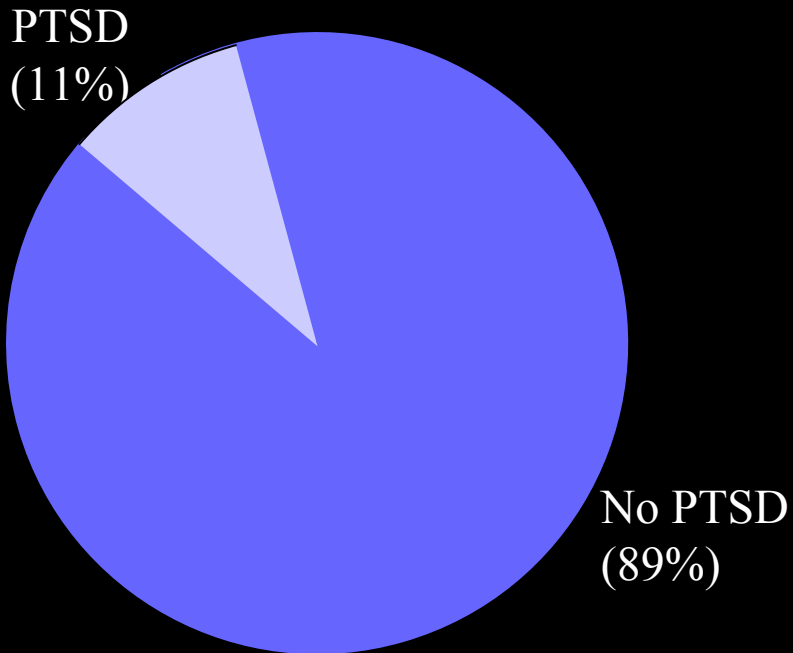
Percentage of Children Displaying PTSD At Time of Follow-up (n=45)



3 Month Follow-Up: Children Displaying PTSD (n=44)

Children Who Did Not Display
ASD at time of Admission

Children Who Displayed ASD at
time of Admission

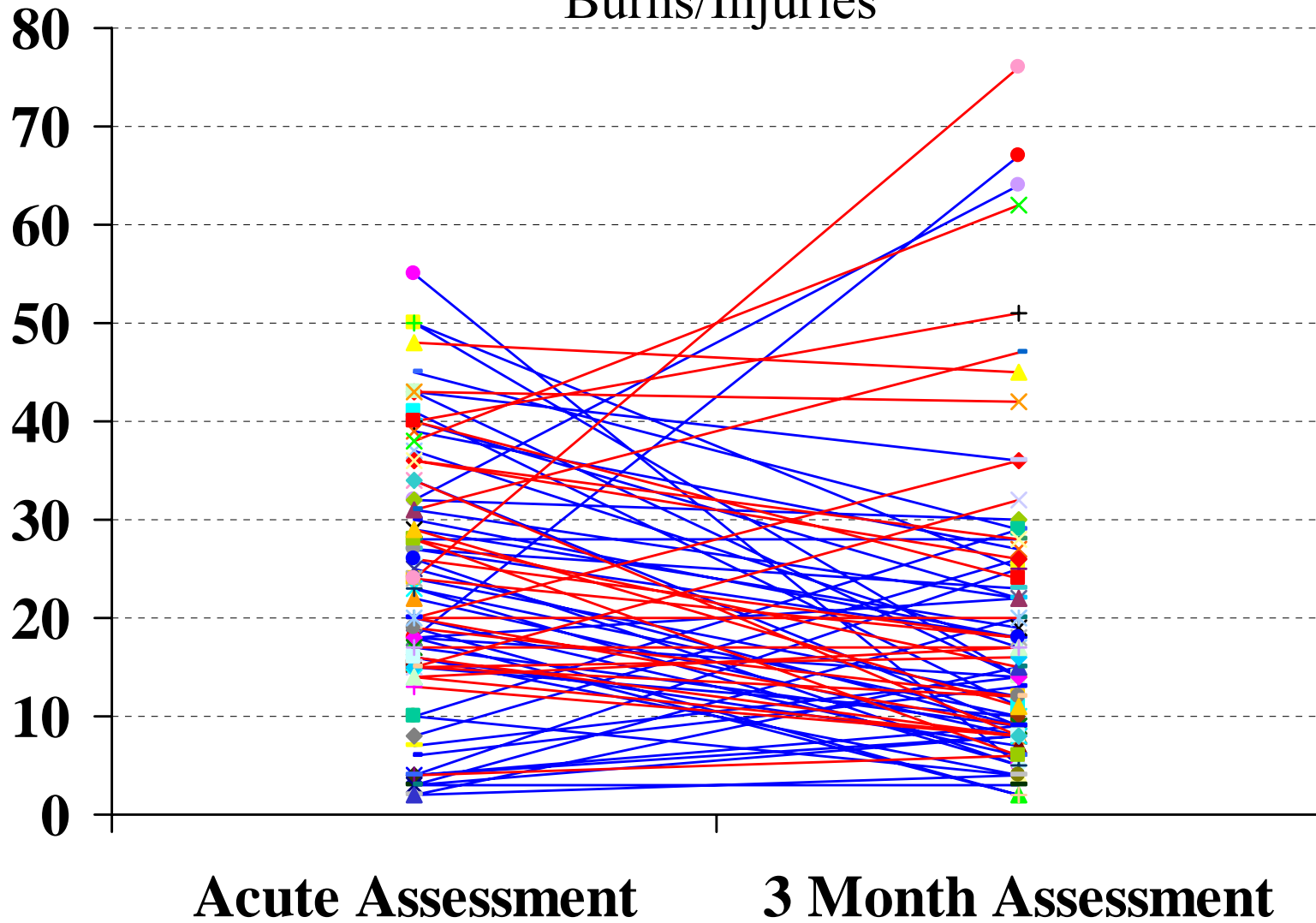


Chi squared 3.11 (d.f. =1), $p > .08$

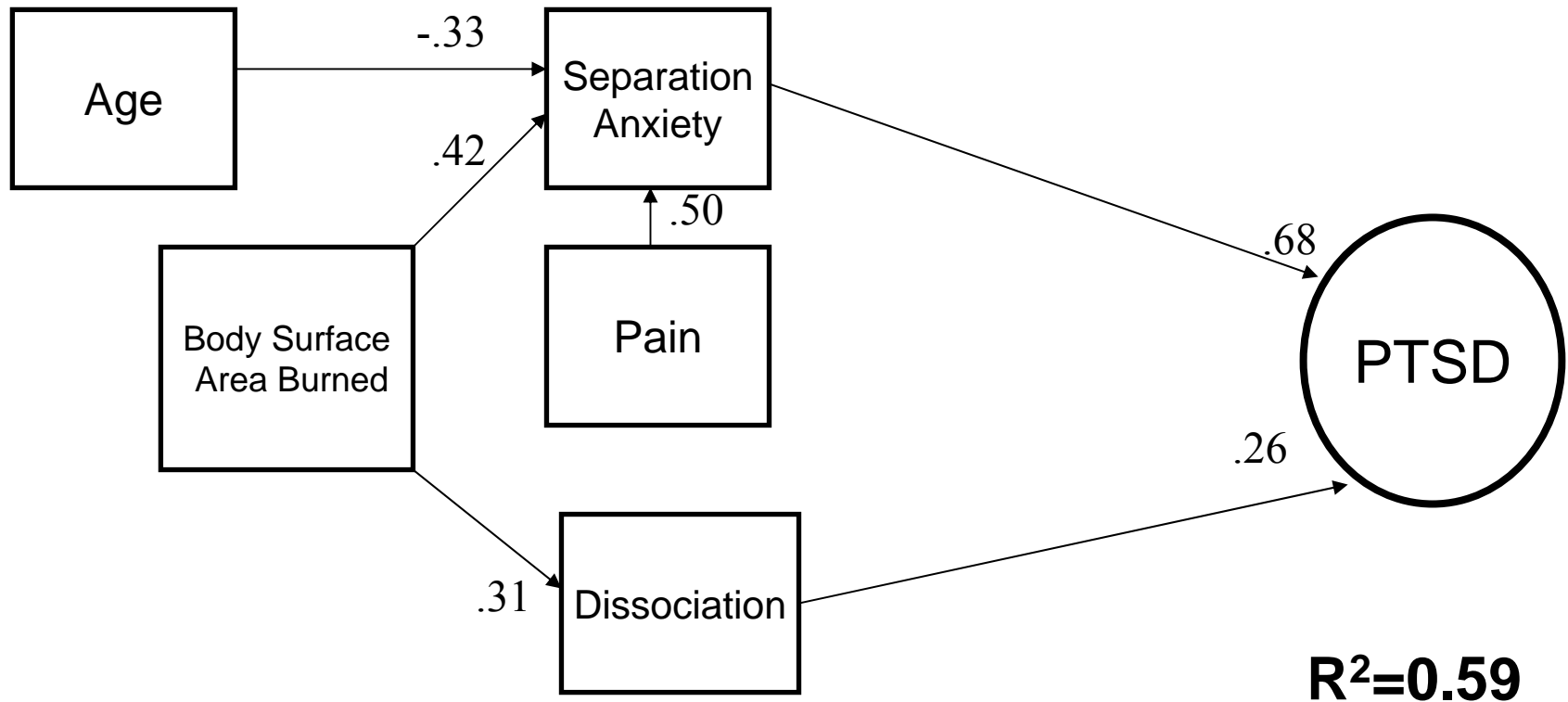
The Questions

2) What are the risk factors for getting PTSD?

Longitudinal Course of PTSD Symptoms in Children with Burns/Injuries



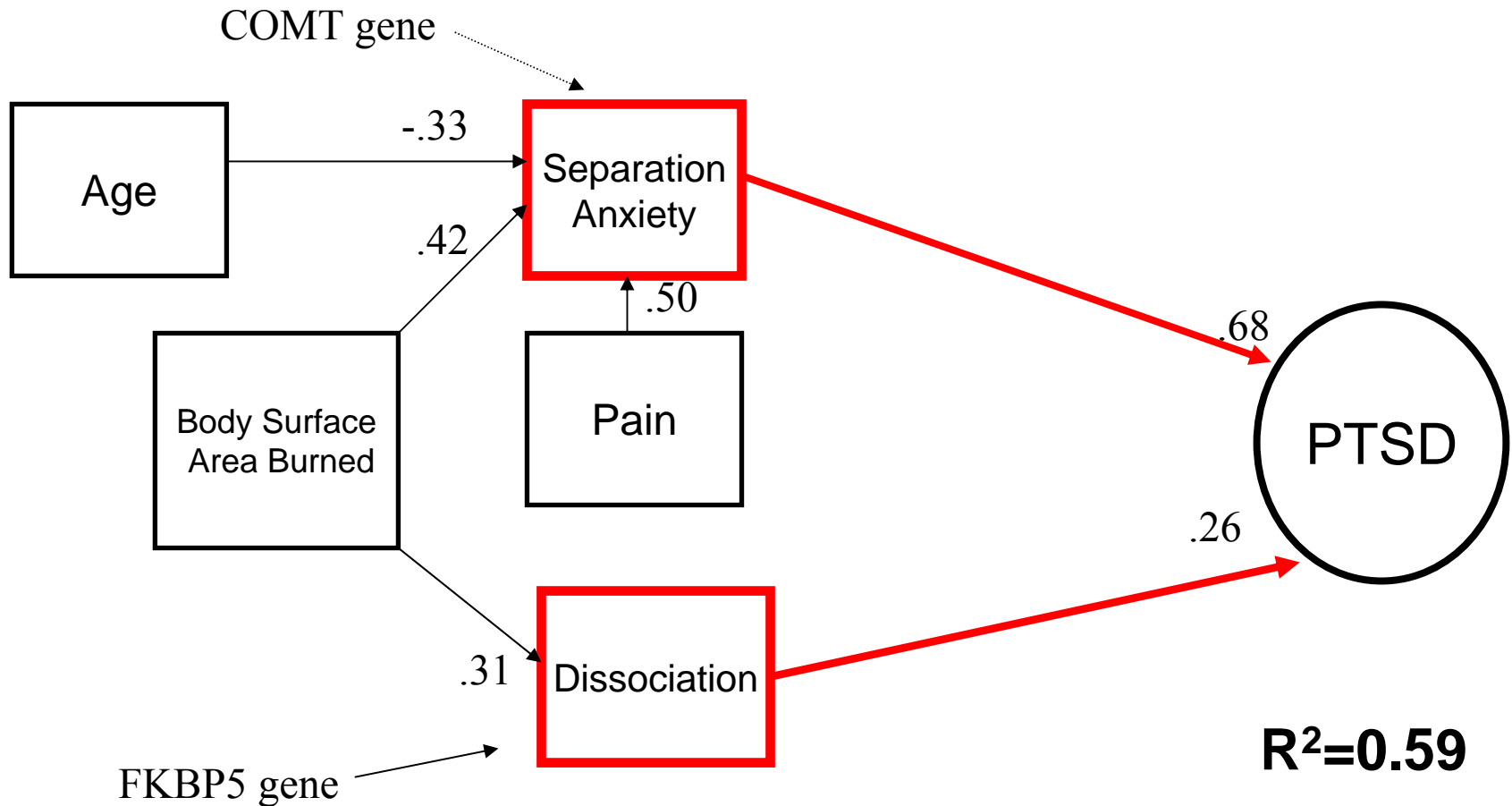
Pathways to PTSD I Children with Burns (N = 72) Saxe, Stoddard, Hall et. al, AJP, 2005



Fit Indices: Chi Square ($\chi^2 = 7.14, df = 11, p = .782, df = 6, p = .92$), Comparative Fit Index (CFI = 1.00), Tucker Lewis Index (TLI = 1.100) and Root Mean Square Error of Approximation (RMSEA = 0.00)



Pathways to PTSD I Children with Burns (N = 72) Saxe, Stoddard, Hall et. al, AJP, 2005

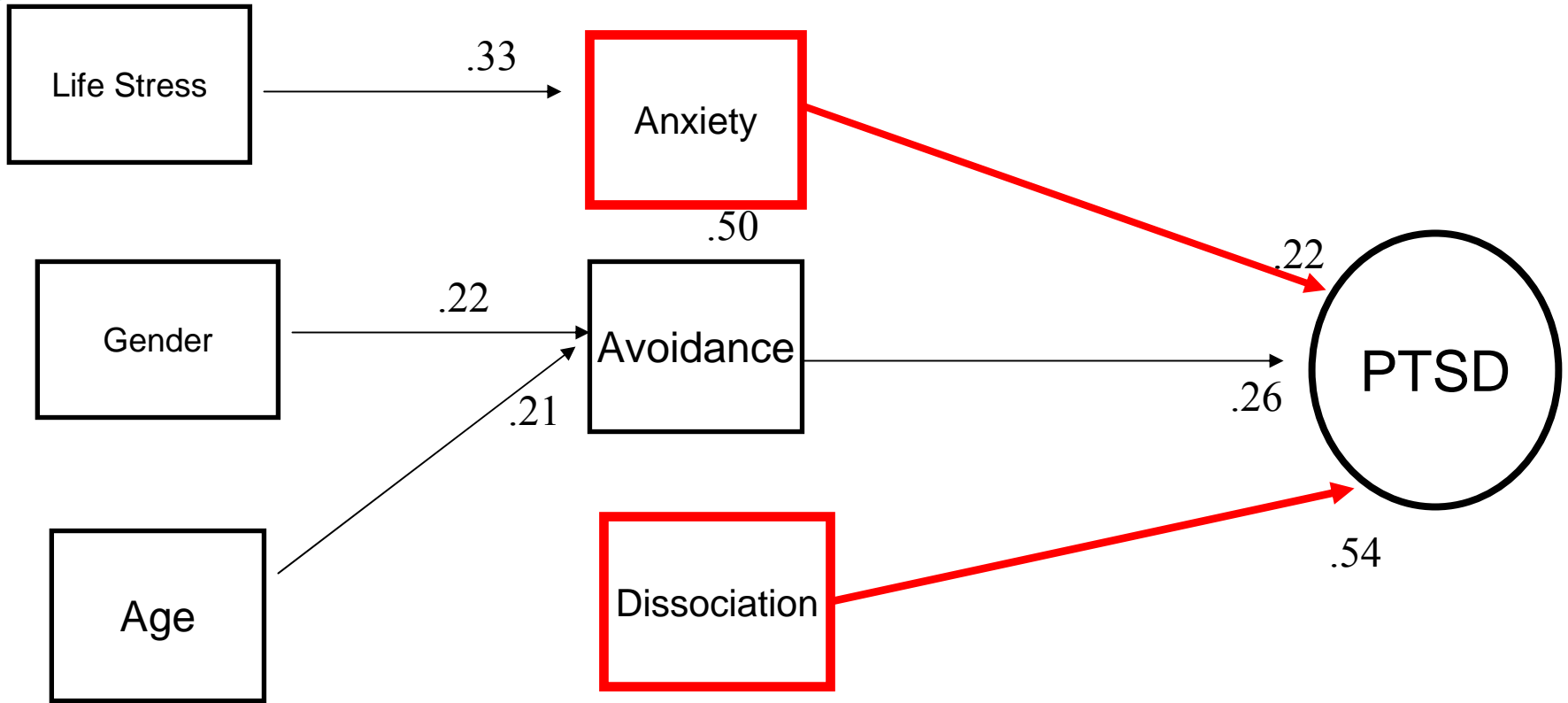


Fit Indices: Chi Square ($\chi^2 = 7.14, df = 11, p = .782, df = 6, p = .92$), Comparative Fit Index (CFI = 1.00), Tucker Lewis Index (TLI = 1.100) and Root Mean Square Error of Approximation (RMSEA = 0.00)

Pre-trauma Trauma Peri-trauma Post-trauma

Pathways to PTSD II Sexually Abused Children (N = 72)

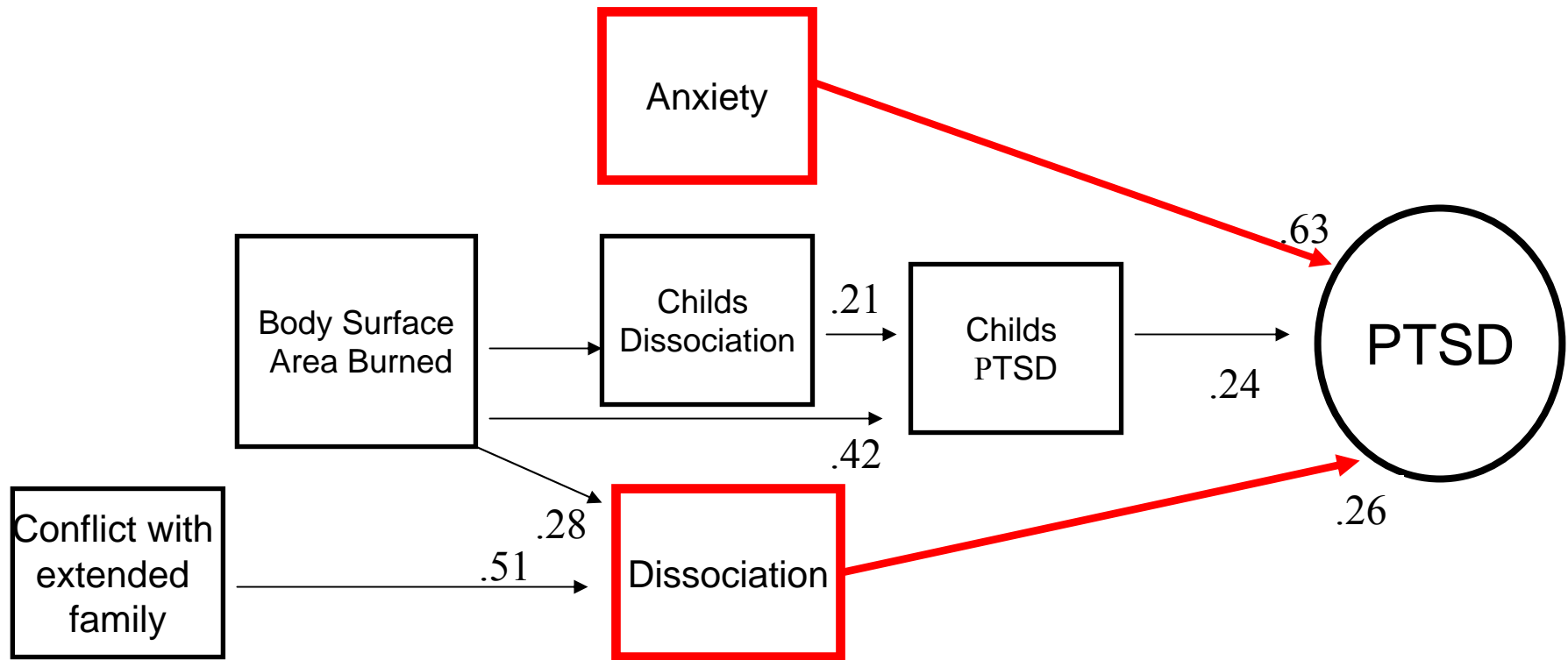
Kaplow, Dodge, Amaya Jackson, Saxe, AJP, 2005



Pre-trauma Trauma Peri-trauma Post-trauma

Pathways to PTSD III Parents of Children with Burns (N = 72)

Hall, Saxe, Stoddard, et. al, J Ped Psychology, 2005



Pre-trauma

Trauma

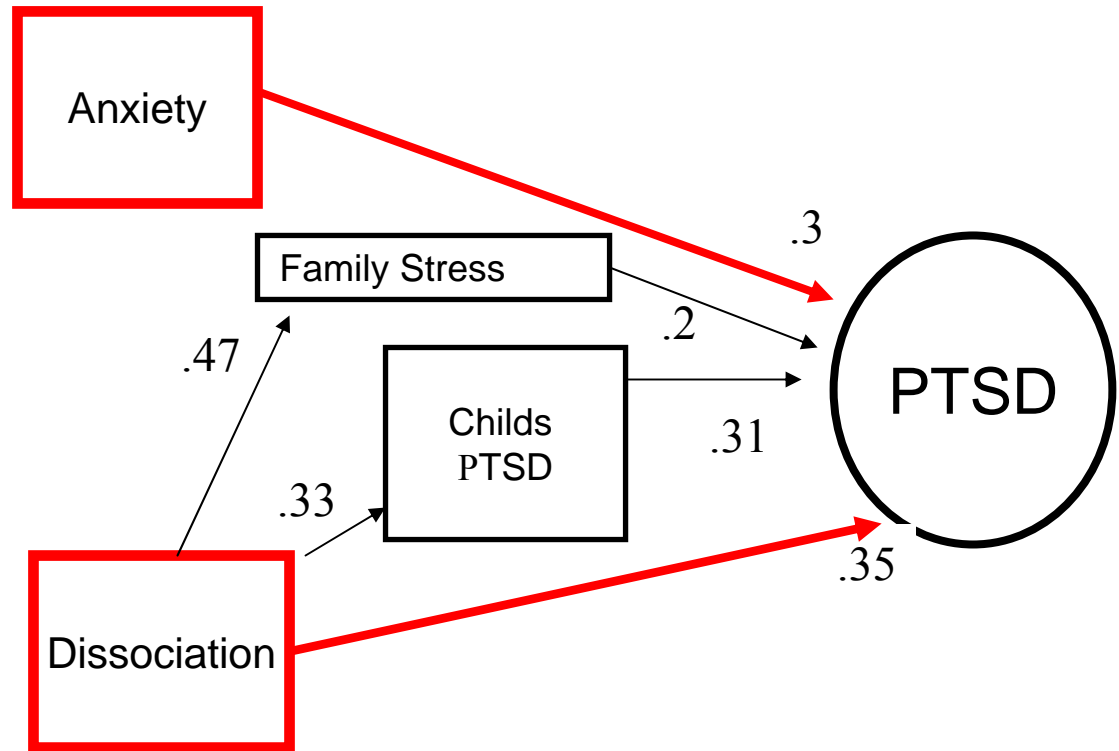
Peri-trauma

Post-trauma

Pathways to PTSD IV

Parents of Children with Injuries (N = 51)

Hall, Saxe, Stoddard, et. al, unpublished



The Questions

3) Can children at risk be identified early?

CSDC-Screening Form

Saxe GN, Bosquet M, Kassam-Adams N

- 4 item screen for ASD and PTSD in children,
- Based on 30 item CSDC
- Goal to construct the briefest measure of ASD and PTSD possible, that has solid psychometric properties

CSDC-Screening Form Reliability

	<u>4-Item Scale</u>	<u>30-Item Scale</u>
Chronbach α	.84	.93
Test-retest reliability	.77	.85
Inter-rater reliability	.49	.45

Concurrent Validity

<u>Measure</u>	<u>4-Item Scale</u>	<u>30-Item Scale</u>
CPTSD-RI	.28**	.29**
CBCL-PTSD	.38***	.56***
CDC	.38***	.47***

Discriminant Validity

CBCL-Thought Problems	.13	.31**
CBCL-Delinquency	.13	.21+

<i>Predictive Validity</i>	<i>(Acute ⇒ 3 Months)</i>	
CPTSD-RI	.39**	.44**
CBCL-PTSD	.42**	.49**
CDC	.57***	.56***
DICA (Child report)	.40**	.48**
DICA (Parent report)	.68***	.74***

<i>Predictive Validity</i>	<i>(3 Months ⇒ 6 Months)</i>	
DICA (Child report)	.67***	.74***
DICA (Parent report)	.43*	.63**

<i>Predictive Validity</i>	<i>(Acute ⇒ 6 Months)</i>	
DICA (Child report)	.38*	.39*
DICA (Parent report)	.21	.28

CSDC-Screening Form

PTSD Mnemonic

Physical complaints when reminded of injury.

Talking about injury is avoided.

Startles easily.

Distressed if reminded of injury.

The Questions

4) Can the risk of PTSD be diminished with early intervention?

Morpheus

The Greek
god of
dreams





“ Into the bowl in which their wine was mixed, she slipped a drug that had the power of robbing grief and anger of their sting and banishing all painful memories”

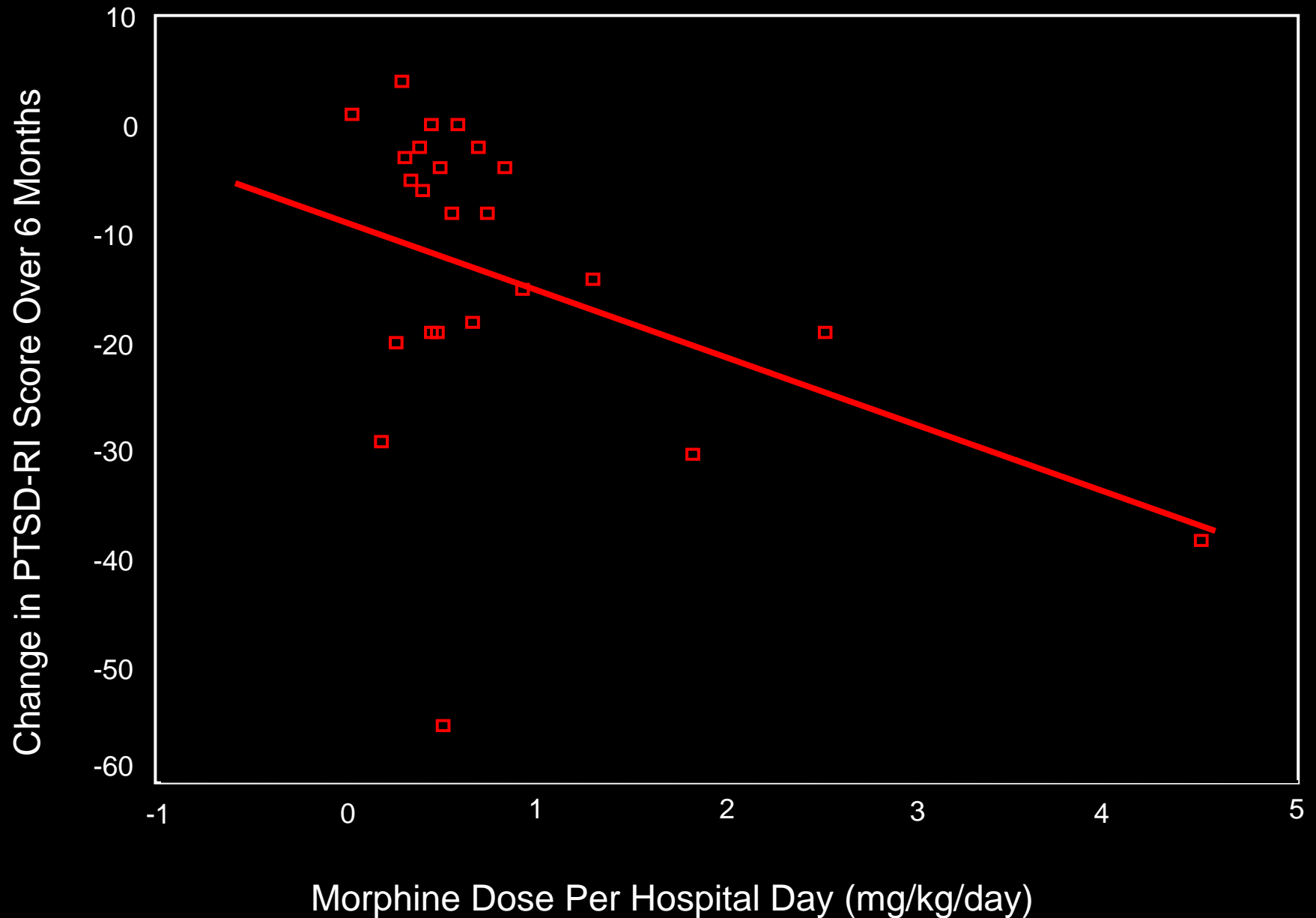
Homer, The Odyssey



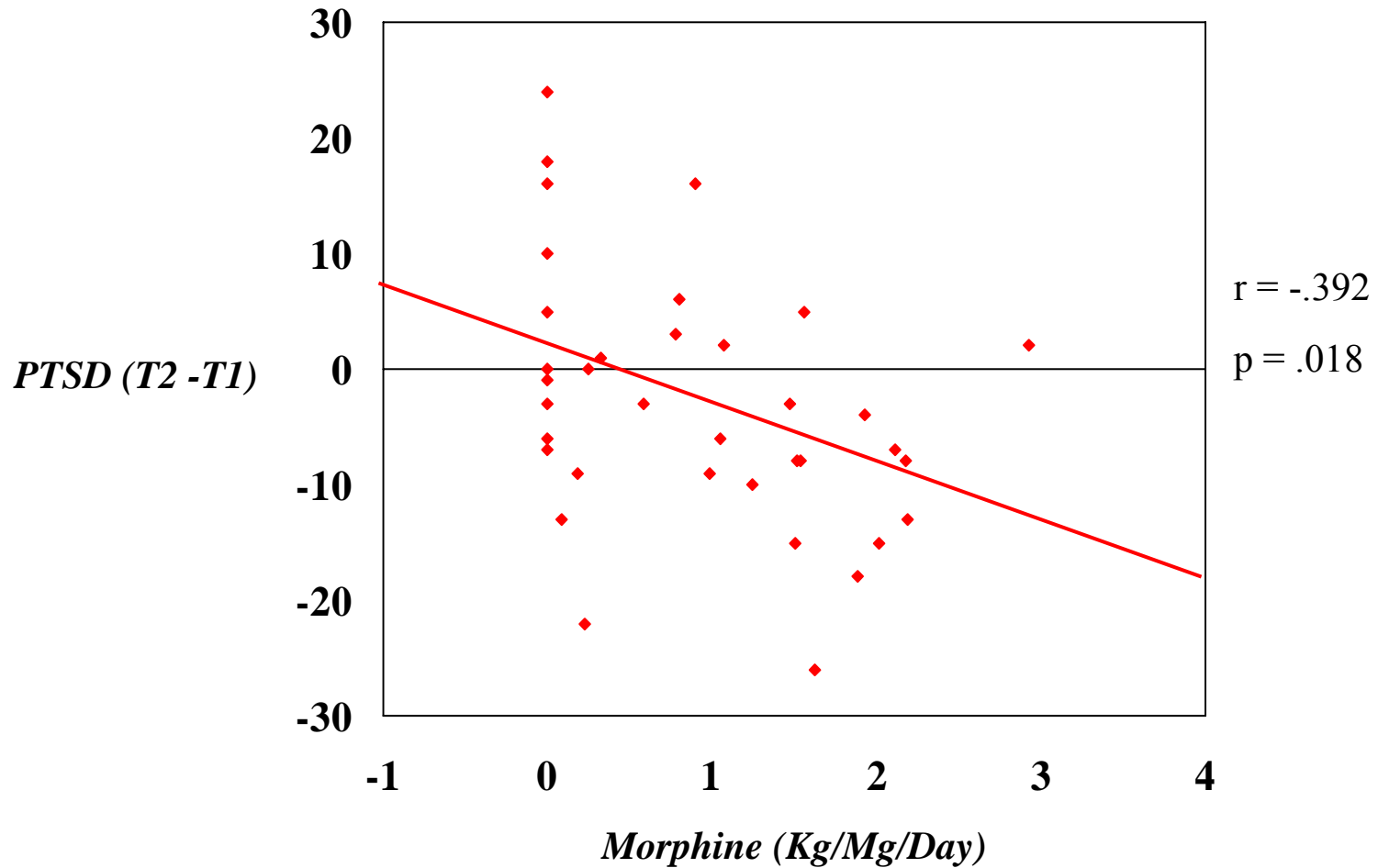
*“Sweet sister morphine,
turn my nightmares into dreams”*

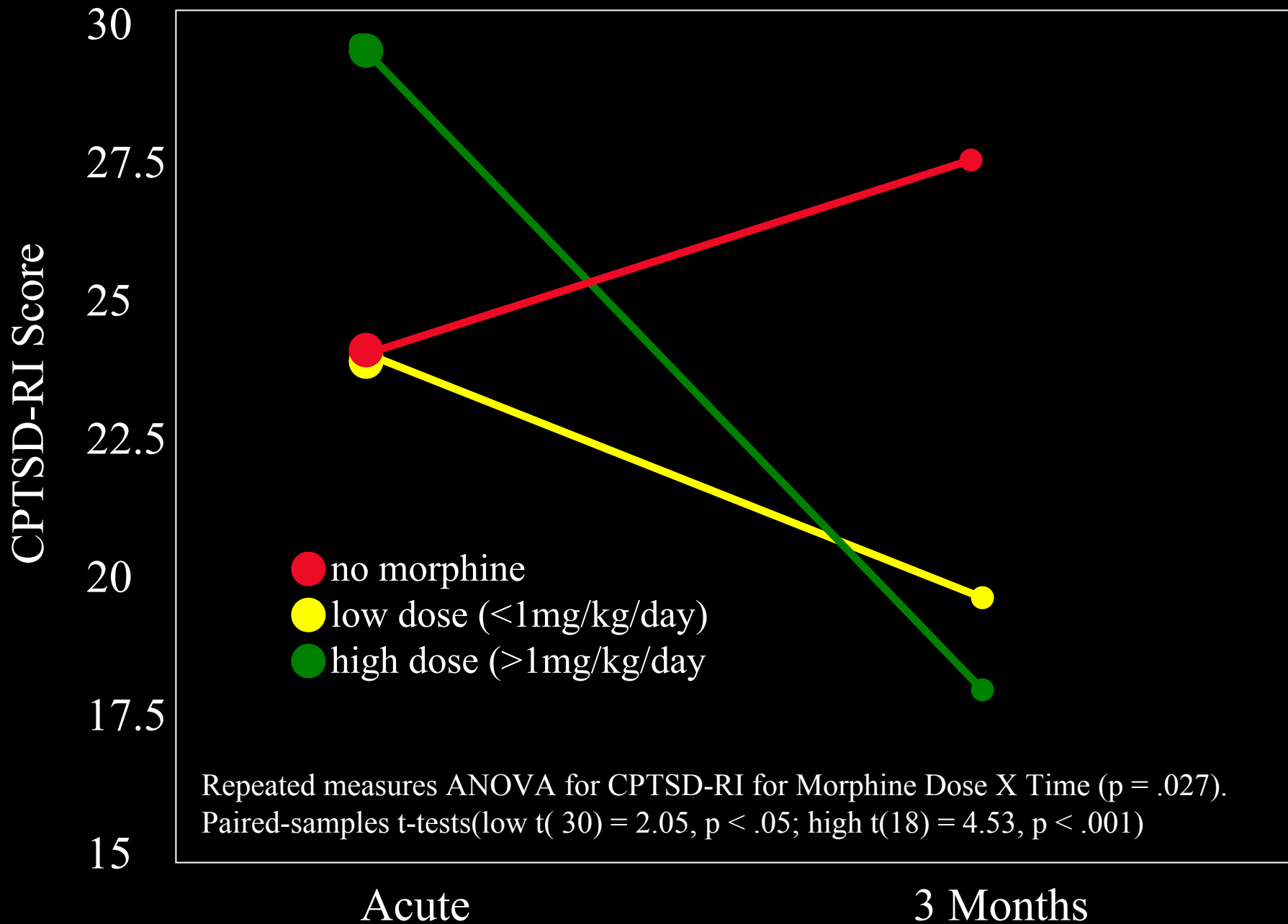
Jagger, Richards, Faithful

Relationship Between Morphine Dose During Hospitalization and Change in PTSD Symptoms Over 6 Months ($r = .44$; $p < .05$)



Change in PTSD and Morphine (Kg/Mg/Day)





The Questions

5) Can PTSD be treated once it is established?



PEDIATRIC MEDICAL TRAUMATIC STRESS TOOLKIT



FOR HEALTH CARE PROVIDERS



Traumatic Stress in Ill or Injured Children

AFTER THE ABC'S CONSIDER THE DEF'S

D

Distress

- Assess and manage pain.
- Ask about fears and worries.
- Consider grief and loss.

E

Emotional Support

- Who and what does the patient need now?
- Barriers to mobilizing existing supports?

F

Family

- Assess parents' or siblings' and others' distress.
- Gauge family stressors and resources
- Address other needs (beyond medical)?

Assessing and Treating Traumatic Stress Using the D-E-F Protocol:

All health care providers treating children, regardless of discipline, should be “trauma-informed.” This means that they should incorporate an understanding of traumatic stress and related responses into their routine encounters with children and families. Trauma-informed health care professionals should be able to provide basic interventions to children and families that will minimize the potential for ongoing trauma and maximize continuity of care. The D-E-F protocol provides a straightforward and reliable method for identifying, preventing, and treating traumatic stress responses at the time of need and within scope of practice. Healthcare providers are experts in treating illness, restoring functioning, and saving lives. After attending to the basics of children’s physical health (the A-B-C’s), providers can promote their patients’ health and recovery by paying attention to the next steps — “D-E-F”

- Reduce **DISTRESS**
- Promote **EMOTIONAL SUPPORT**
- Remember the **FAMILY**

D-E-F PROTOCOL

for Assessing and Treating Children and Families with Traumatic Stress

D **DISTRESS** See pocket card for brief assessment and recommended interventions to address and treat pain, fears and worries, and grief and loss. **Recommendations include:**

- Actively assess and treat pain, using your hospital’s protocol.
- Provide child with information about what is happening and choices regarding treatment decisions when possible.
- Listen carefully for child’s understanding and clarify any misconceptions.
- Ask about fears and worries.
- Provide reassurance and realistic hope.

E **EMOTIONAL SUPPORT** See pocket card for brief assessment and recommended interventions to address child’s emotional needs, and barriers to mobilizing existing supports. **Recommendations include:**

- Encourage parents to be with their child as much as possible and to talk with their child about worries and fears.
- Empower parents to comfort and help their child.
- Encourage child’s involvement in age-appropriate activities when possible.

F **FAMILY** See pocket card for brief assessment and recommended interventions to address parents’ and siblings’ distress, family stressors and resources, and needs beyond medical care. **Recommendations include:**

- Gauge family distress and other life stressors; identify family strengths and coping resources.
- Encourage parents to use own coping resources or support available at the hospital or in the community.

D E F **QUICK SCREEN** See this pocket card to identify and assist those who have traumatic stress symptoms or who are at greater risk for traumatic stress. **Recommendations include:**

- Involve psychosocial staff in a team-based approach for those at higher risk.
- Make referrals to hospital or community-based mental health resources when appropriate.

OTHER See the charts on pages 7-9 for descriptions and information on useful clinical measures for assessing acute and post-traumatic stress symptoms in children and parents, as well as tools for assessing pain and parent coping assistance.

QUICK SCREEN

Is this child at risk for ongoing traumatic stress reactions?

ASK PARENT: Since this has happened, does your child...

- get **Physical** symptoms if reminded of the illness or injury?
- try not to **Talk** about it?
- **Startle** easily (for example, jump at sudden noises)?
- get very **Distressed** if reminded of the illness or injury?

ASK CHILD:

- Have you been really scared or thought you might die?
- Does a sudden noise really make you jump?
- Do you feel very upset when something reminds you of being sick or hurt?
- Do you have people who care about you and pay attention to what you say?

REMEMBER RISK FACTORS:

- Severe pain at any time?
- Exposed to scary sights and sounds?
- Separated from parents or caretakers?
- Loved ones ill or injured? Did anyone die?
- Other losses: (e.g. home, pet, belongings)?
- Is child mourning loss of ability, body image, or future?
- Prior scary experiences?
- Prior behavior problems?

If multiple concerns or risk factors present, arrange follow-up and consider referral for further assessment.

D

Distress

How to Assess: Distress

TRAUMATIC STRESS IN ILL OR INJURED CHILDREN



Pain: Use your hospital's pediatric pain assessment. Ask:

- **Current pain:** "How is your pain right now?"
- **Worst pain:** "What was the worst pain you have had since this happened?"

Fears and Worries:

- "Sometimes children are scared or upset when something like this happens. Is there anything that has been scary or upsetting for you?"
- "What worries you most?"

Grief or Loss:

- Anyone else hurt or ill?
- Other recent losses? (loss / damage to home, pet, etc.)

How to help: Distress

Tips to help families of injured or ill children

- 1 Provide the child with as much control as possible over the clinical encounter. The child should:**
 - understand what is about to happen
 - have a say in what is about to happen
 - have some control over pain management
- 2 Actively assess and treat pain.**
 - Use your hospital's pain management protocol
- 3 Listen carefully to hear how the child understands what is happening.**
 - After explaining diagnosis or procedure, ask the child to say it back to you.
 - Remember that the child's understanding may be incomplete or in error.
- 4 Clarify any misconceptions.**
 - Provide accurate information.
 - Use words and ideas the child can understand.
- 5 Provide reassurance and realistic hope.**
 - Describe what is being done to help the child get better.
 - State that there are many people working together to help the child.
- 6 Pay attention to grief and loss.**
 - Mobilize your hospital's bereavement service and/or grief protocols.
 - Encourage parents to listen to their child's concerns and be open to talking about their child's experience.

E

Emotional Support

How to Assess: Emotional Support

TRAUMATIC STRESS IN ILL OR INJURED CHILDREN



What Does The Child Need Now?

- **Ask parents:** “What helps your child cope with upsetting or scary things?”
- **Ask child:** “What has been the best thing so far that helps you feel better?”

Who Is Available To Help The Child?

- Do the parents understand the illness or injury and treatment plan?
- Are they able to help calm their child?
- Are they able to be with their child for procedures?

How Can Existing Supports Be Mobilized?

- **Ask parents:** “Who can you or your child usually turn to for help or support? Are they aware of what’s happened?”

How to help: Emotional Support

Tips to help families of injured or ill children

1 Encourage parent presence.

- Encourage parents to be with their child as much as possible during hospital stay.
- Encourage parents to talk with their child about worries, hopes, etc.
- Parents know their child better than anyone, and can help staff understand their child's needs and coping strengths.

2 Empower parents to comfort and help their child.

- Help parents understand the illness or injury and treatment plan — so that they can give age-appropriate explanations to their child.
- Encourage parents to use the ways they have learned to soothe and calm their child at home.
- Parents may welcome specific suggestions from staff about how to help their child during procedures — e.g., “You can hold his hand and talk to him while we do this.”

3 Encourage social support & involvement in “normal” activities.

- Suggest age-appropriate positive activities that fit the child's medical status (play, family time, videos).
- Promote the child's appropriate contact with friends, classmates, teachers (letters, calls, email).

F

Family

How to Assess: Family

TRAUMATIC STRESS IN ILL OR INJURED CHILDREN



Assess Parents' or Siblings' and Others' Distress

- “Have you or other family members been very upset since this happened?”
- “Who is having an especially difficult time?”

Gauge Family Stressors & Resources

- “Are there other stresses for your family right now?”
- “Have you been able to get some sleep?
To eat regularly?”

Address Other Needs (Beyond Medical)?

- “Are there other worries (money, housing, etc) that make it especially hard to deal with this right now?”

How to help: Family

Tips to help families of injured or ill children

1 Encourage parents' basic self-care.

- Encourage parents to take care of themselves. They need sleep, nutrition, and breaks from the hospital.

2 Remember family members' emotional needs.

- Help them to enlist support systems (friends, family, faith community)
- If parents or other family members are having difficulty coping,
 - use hospital services (chaplain, family support services)
 - consider referral of parent to mental health professional.

3 Be sensitive to resource needs of the family.

- These issues can significantly interfere with the child's recovery. If problems are identified, utilize psychosocial resources (e.g., social work services) to address them.
- Housing
- Finances
- Insurance
- Language/Translation
- Immigration
- Care of other children

The State of the Science

1) How many burned children get PTSD?



2) What are the risk factors for getting PTSD?



3) Can children at risk be identified early?



4) Can the risk of PTSD be diminished with early intervention?



5) Can PTSD be treated once it is established?

