

# Toward a Developmentally Sensitive DSM-5:

Validations of the Diagnostic Criteria for PTSD and ASD Among Preschool, School-Age, and Adolescent Samples

*Chair: Patricia K. Kerig*

*Making PTSD Criteria Developmentally Appropriate*  
Michael S. Scheeringa

*PTSD as a “Gateway” Disorder in Children*  
Justin Kenardy, Alexandra De Young, Erin Charlton

*Child Acute Stress Symptoms: Evidence/Implications for Diagnostic Criteria*  
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*Is the Dysphoric Versus Anxious Arousal Distinction Relevant to Youth?*  
Diana Bennett, Patricia Kerig, Shannon Chaplo

# Making PTSD Criteria Developmentally Appropriate

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International Society  
for Traumatic Stress Studies

**ISTSS 28th  
Annual Meeting**

**Beyond Boundaries:**  
Innovations to Expand Services and  
Tailor Traumatic Stress Treatments

**November 1 – 3, 2012**

Pre-Meeting Institutes, October 31, 2012

JW Marriott Los Angeles at L.A. Live • Los Angeles, CA USA



## Continuing Medical Education Commercial Disclosure Requirement

I, Michael Scheeringa, have no commercial  
relationships to disclose.

# Preschool Challenges

- Many PTSD symptoms are highly internalized. Difficult to observe.
- Emerging verbal capacities.
- Different developmental manifestations.

Scheeringa MS (2011). Journal of Child & Adolescent Trauma 4:3, 181-197

# PTSD-Alternative Algorithm (PTSD-AA) Recommendations for Preschool Children

A. Exposed to traumatic event.

(2) person's response involved intense fear, helplessness, or horror. Note: In children, may be expressed by disorganized or agitated behavior. *Recommendation: Delete.*

B.(1) recurrent and intrusive distressing recollections of the event. *Recommendation: "distress" not required.*

# PTSD-AA recommendations

C. Avoidance and numbing cluster: *Recommendation: only 1 item instead of 3 required.*

C.(4) diminished interest in significant activities.

*Recommendation: ...may be manifest in play, social interactions, and daily routines.*

C.(5) feeling of detachment or estrangement from others.

*Recommendation: Increased social withdrawal.*

D.(2) irritability or outbursts of anger

*Recommendation: ...or extreme fussiness or temper tantrums.*

# Face Validity for PTSD-AA Criteria

	<i>Dx % by DSM-IV</i>	<i>Dx % by alternative</i>	<i># PTSD sx in alternative dx</i>
<i>Scheeringa et al 1995 n=12</i>	13%	69%	Not reported
<i>Scheeringa et al 2001 n=15</i>	20%	60%	9.9
<i>Levendosky et al 2002 n=62</i>	3%	26%	Not reported
<i>Ohmi et al 2002 n=32</i>	0%	25%	6.1
<i>Scheeringa et al 2003 n=62</i>	0%	26%	6.1
<i>Meiser-Stedman et al 2008 n=156</i>	1.7%	10%	10.0
<i>de Young et al 2012 n=130</i>	5%	25%	6.4 for “misclassified”
<i>Scheeringa et al 2012 n=284</i>	13%	45%	7.0 for “misclassified”

# New Data on Preschool: Study Design

Recruitment different types of trauma groups:

1. **Single Event** - acute injuries.
  2. **Repeated Events** – domestic violence.
  3. Circumstances added a **Hurricane Katrina group**.
- **Goal:** Compare different diagnostic criteria.

Funded by National Institute of Mental Health (R01 MH 65884-01A1)

**Collaborators:** Stacy Drury, Danny Pine, Frank Putnam, Charley Zeanah. **Research assistants:** Ruth Arnberger, Rociel Martinez, Sarah Watts, Tolanda Age, Cedar O'Donnell, Moira Flanagan, Emily Roser, Yolanda Steptore, Roneisha Alexander, Aleyda Diaz.



# Characteristics of 3 Trauma Groups

	Single	Repeated	Hurricane
N	62	85	137
Age	5.2 yrs	5.1 yrs	5.1 yrs
Race Black/A-A	82% <sup>a</sup>	62% <sup>b</sup>	62% <sup>b</sup>
White	11% <sup>b</sup>	18% <sup>b</sup>	28% <sup>a</sup>
Other	7%	20%	10%
Mom education	12.4 yrs <sup>b</sup>	12.0 yrs <sup>b</sup>	13.7 <sup>a</sup>
Father in home	23% <sup>b</sup>	7% <sup>a</sup>	34% <sup>b</sup>
# types of event	1.0	1.7	1.4
# episodes	1.0	68.8 (median 9)	1.5

No differences between groups on mean Total, re-experiencing, avoidance/numbing, or increased arousal PTSD symptoms. (Scheeringa et al., 2012)

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# DSM-5

- Will include the first developmental subtype of a disorder in the history of the DSM: “Posttraumatic stress disorder in preschool children”
- Incorporates all of the PTSD-AA recommendations in previous slides

# DSM-5

- One difference from PTSD-AA

D.4. “Persistent reduction in expression of positive emotions.”

# DSM-5 “Under Consideration” Symptoms: DSM-5-UC

- D.1. “Substantially increased frequency of negative emotional states – for example, fear, guilt, sadness, shame, or confusion.”
- E.2. “Reckless or self-destructive behavior.”

These are highly problematic:

- (1) overlap with existing PTSD symptoms,
- (2) developmental inappropriateness, and
- (3) overly internalized...

Not to mention complete lack of empirical data.

# Misclassification Rates

Other:	If DSM-IV Positive (n = 36)		If DSM-IV Negative (n = 248)	
	Other Pos.	Other Neg.	Other Pos.	Other Neg.
PTSD-AA	100%	0%	37%	63%
DSM-5	100%	0%	36%	64%
DSM-5-UC	100%	0%	42%	58%

# Severity and Comorbidity

	PTSD symptoms	Impaired Domains	Comorbid Disorder	CBCL Total
DSM-IV	9.7	2.6	89%	70.6
PTSD-AA*	7.0	2.2	69%	61.1
DSM-5*	7.0	2.2	69%	61.1
DSM-5-UC*	7.4	2.1	67%	60.5

Note: Comorbid disorders = major depression, ADHD, oppositional defiant disorder, separation anxiety, specific phobia, social phobia, and generalized anxiety disorders.

\*For PTSD-AA, DSM-5, and DSM-5-UC, only misclassified cases used.

# What About 7-18 Years Youth?

- 141 youth, 7-18 years, enrolled for a treatment study of CBT ± D-cycloserine.
- Interviewed for PTSD with modified Diagnostic Interview Schedule for Children, parent and child versions.
- Funded by U.S. National Institute of Mental Health (1RC1 MH088969-01)

Collaborators: Judith Cohen, Danny Pine, Karin Mogg, Brendan Bradley, Carl Weems

- Therapists: Emily Roser, Allison Staiger.
- Assistants: Megan Kirkpatrick, Jennifer Liriano.

# No Differences Between Diagnostic Criteria Options with 13-18 Years Youth

<b>N=61</b>	<b>Diagnosed: No</b>	<b>Diagnosed: Yes</b>	<b>Number PTSD symptoms</b>	<b>Number domains impaired</b>
DSM-IV	30%	70%	11.9	4.7
PTSD-AA	26%	74%	*	*
DSM-5	31%	69%	*	*

\*Misclassified samples too small for meaningful means.



# Marked Differences Between Diagnostic Criteria Options with 7-12 Years Youth

<b>N=78</b>	<b>Diagnosed: No</b>	<b>Diagnosed: Yes</b>	<b>Number PTSD symptoms</b>	<b>Number domains impaired</b>
DSM-IV	65%	35%	10.8	4.6
PTSD-AA	35%	65%	7.6*	4.0*
DSM-5	46%	54%	7.8*	4.4*

\*Misclassified cases only

# Conclusions

- Preschool children require separate diagnostic criteria. Will be in DSM-5.
- Older (7-12 years) children may also need modified criteria. Poorly studied group.
- Should lead to huge increases in diagnoses and access to treatment.

# PTSD AS A “GATEWAY” DISORDER IN CHILDREN

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# COMORBIDITY AND PTSD-I

- Adults
  - Up to 80% of PTSD has comorbidity at some point
  - Depression, Generalized Anxiety Disorder, Substance Abuse
  - Comorbidity varies over time
  - Relationship between Depression and traumatic stress changes over time (O'Donnell et al, 2004)
  - PTSD may be constant but not always at a diagnostic level (McMillen et al, 2002)
  - Comorbidity may also be premorbidity (Koenen et al 2008)

# COMORBIDITY AND PTSD-II

- Children
  - PTSD is under-recognised in children and this may in part be because comorbidity is easier to recognise
  - Also PTSD Diagnostic Criteria may be inappropriate (De Young et al, 2011; Cohen & Scheeringa, 2010)
  - Contrary to belief, PTSD in children may be less likely to remit with time (Scheeringa et al, 2005)
  - Within range of 0-18 presentation can change
  - Relatively more Substance Abuse, Depression, in adolescents
  - More ADHD, ODD, Separation Anxiety in young children
  - Do these change over time?
  - Is PTSD a gateway?

# AIMS

- To document prevalence of psychological reactions in children at 4 to 6 weeks, and again at 6 months following traumatic injury.
- To examine the relationships between posttraumatic stress and other psychological reactions in children

# METHOD - PARTICIPANTS STUDY 1

- Sample drawn from Royal Childrens Hospital in Brisbane Australia
- Admission to hospital
- Age 1 – 6 years at admission
- All experienced traumatic burn injury
- N=130 admissions
- Assessed using Diagnostic Infant Preschool Assessment (Scheeringa & Haslett, 2010)

# STUDY 1 PARTICIPANTS

## Patient Characteristics

Male	68 (52)
Female	62 (48)
Age (years), M (SD)	2.70 (1.54)
<b><u>Burn type</u></b>	
Scald	53 (41)
Contact	51 (39)
Fire/flames	13 (10)
Chemical/electrical	4 (3)
Friction	9 (7)
<b><u>Burn severity</u></b>	
% TBSAa, M (SD)	3.24 (4.30)
Hospitalised	27 (21)



# ONE MONTH DIAGNOSES IN CHILDREN AGED 1-5 YO POST BURN TRAUMA.

	Rate	New onset	Comorbid w. PTSD
PTSD-AA	33 (25%)	33 (100%)	-
PTSD-DSM IV	6 (5%)	6 (100%)	-
MDD	4 (3%)	4 (100%)	4(12%)*
ADHD	7 (5%)	2 (29%)	4 (12%)
ODD	21 (16%)	18 (86%)	16 (49%)*
SAD	21 (16%)	21 (100%)	16 (49%)*
Specific Phobia	6 (5%)	3 (50%)	5 (15%)*
Any disorder	45 (35%)	41 (91%)	24 (73%)

# SIX MONTH DIAGNOSES IN CHILDREN AGED 1-5 YO POST BURN TRAUMA.

	Rate	New onset	Comorbid w. PTSD
PTSD-AA	13 (10%)	3 (23%)	-
PTSD-DSM IV	1 (1%)	0 (0%)	-
MDD	0 (0%)	0 (0%)	0(0%)
ADHD	8 (6%)	5 (63%)	5 (39%)*
ODD	17 (14%)	3 (18%)	10 (77%)*
SAD	10 (8%)	3 (30%)	5 (39%)*
Specific Phobia	12 (10%)	8 (67%)	2 (15%)
Any disorder	34 (27%)	18 (53%)	11 (85%)

# RELATIONSHIP BETWEEN PTSD AND OTHER MORBIDITY OVER TIME

- PTSD at 1 month predictive of new non-PTSD diagnosis at 6 months  $\text{ChiSq}(1)=7.94$ ,  $p<.04$ , OR 4.81 (1.62-14.69)
- All children with new onset non-PTSD diagnosis at 6 months had a minimum of 1 PTSS at 1 month.
- Children with new onset non-PTSD disorder at 6 mths had significantly more one-month PTSS ( $M=5.94$ ) than children with no new onset disorders ( $M=2.73$ ) at 6 months ( $t(17.46) = 3.55$ ,  $p=.002$ )

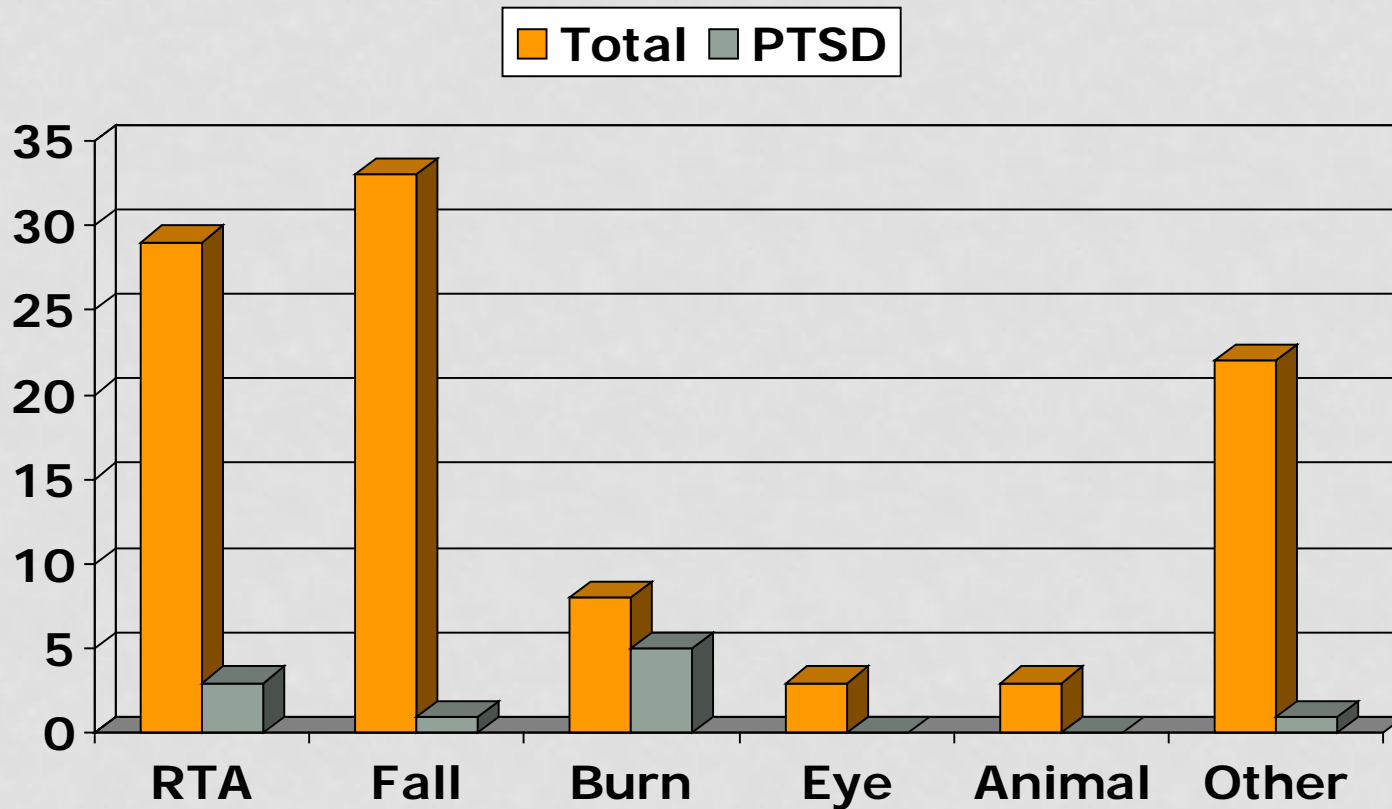
# METHOD – PARTICIPANTS STUDY 2

- Sample drawn from Three Hospitals in Brisbane Australia
- Admission to hospital for 24 hours min.
- Age 7 – 16 years at admission
- No indication of head injury
- 101 admissions after accidents
- 109 other admissions: control group
- Structured clinical interview: Anxiety disorders interview schedule for DSM-IV, child version (ADIS-C; Silverman & Albano, 1996)
- Parents are interviewed about their child's symptoms

# SAMPLE (N=101 & C: N=109)

	Mean	Range
Age in years	10.83 (2.32)	7 – 16
	10.21 (2.28)	7 – 15.75
Duration of admission (hrs)	126.17 (182.97)	24 – 1375
	80.95 (61.46)	25 – 312
ISS	6.63 (4.25)	1 – 25
	Male	Female
Gender (%)	66.7	33.3
	54.2	45.8

# INJURY CAUSES



# INCIDENCE OF PTSD

	4–6 weeks after accident	6 months after accident	Hospital control group
PTSD DSM- IV	3 %	2 %	0
PTSD-AA	20 %*	10 %*	0

# OTHER PSYCHIATRIC MORBIDITY

	4 weeks after accident	6 months after accident	4 week Hospital control group	DSM-IV prevalence
Specific Phobia	6%	5%	0.9 %	?
Separation Anxiety Disorder	15%	12%	6.6 %	2 %
Generalized Anxiety Disorder	9%	5%	8.5 %	3 %
MDD	3%	2%	1.8%	2%



# OTHER PSYCHIATRIC MORBIDITY

	4 weeks after accident	6 months after accident	Hospital control group	DSM-IV prevalence
ADHD	13%	8%	6 %	3-5 %
ODD	13%	15%	8 %	2-16 %
Externali sing	23%	24%	14%	

## COMORBIDITY AT 1 MO.

	% PTSD with	Chi <sup>2</sup>	OR	95%CI
Specific Phobia	11%	ns	ns	ns
Separation Anxiety Disorder	44%	6.39*	8.1	1.2-52.6
Generalized Anxiety Disorder	22%	13.89***	23.4	2.4-225.3
Internalising	61%	13.22***	6.6	2.2-19.6

## COMORBIDITY AT 1 MO.

	% PTSD with	Chi <sup>2</sup>	OR	95%CI
ADHD	28%	5.29*	4.2	1.2-15.2
ODD	25%	ns	2.4	0.71-7.93
Externalising	40%	4.21*	2.9	1.02-8.43

## CO-MORBIDITY AT 6 MO.

	% PTSD with	Chi <sup>2</sup>	OR	95%CI
Specific Phobia	40%	5.34*	7.3	1.1-50.2
Separation Anxiety Disorder	20%	ns	ns	ns
Generalized Anxiety Disorder	50%	7.51**	11.1	1.4-89.9
Internalising	50%	5.75*	4.7	1.2-18.1

MORBIDITY AT 6 MTH. CONDITIONAL ON 1  
MTH. PTSD BUT NO PTSD AT 6 MTH.

	% one mo. PTSD with	X <sup>2</sup>	OR	95%CI
SAD	11%	ns	ns	ns
Specific Phobia	17%	6.39*	8.1	1.3-52.7
Generalized Anxiety Disorder	17%	9.30**	16.4	1.6-168.4
Internalising	48%	16.07***	8.1	2.7-25.2

MORBIDITY AT 6 MTH. CONDITIONAL ON 1  
MTH. PTSD BUT NO PTSD AT 6 MO.

	% 1 mo. PTSD with	X <sup>2</sup>	OR	95%CI
ADHD	11%	ns	.79	.16-3.9
ODD	16%	ns	1.4	.35-5.67
Externalising	37%	ns	2.3	.80-1.11

# PREDICTION OF 6 MO. CO-MORBIDITY BASED ON 1 MO. PTSD EXCL 6 MO. PTSD

- Conditional Logistic Regression model:
- Step 1: 1 mo Internalising Dx
- Step 2: 1 mo PTSD
- DV 6 mo Internalising Dx.
- Significant incremental prediction  $\chi^2(1)=8.18$   
 $p=.004$

# PREDICTION OF 6 MO. CO-MORBIDITY BASED ON 1 MO. PTSD EXCL 6 MO. PTSD

- Conditional Logistic Regression model:
- Step 1: 1 mo Externalising Dx
- Step 2: 1 mo PTSD
- DV 6 mo Externalising Dx.
- Significant incremental prediction  $\chi^2(1) < 1$  NS



# SUMMARY

- New, non-PTSD, diagnoses appear to develop in children following trauma and continue to develop over time
- The presence of PTSD early on predicts the development of later non-PTSD disorders (especially internalising) with and without later PTSD.
- Diagnostic conceptualization of PTSD in children needs to take account of non-PTSD presentations that emerge over time after trauma.
- PTSD does appear to provide a “gateway” function, but may differ in expression with age.

# THANKS

- Children and families that took part in this work
- Other CONROD staff involved in data collection and analysis

# Is the dysphoric vs. anxious arousal distinction relevant to youth?

PTSD symptom structure among  
traumatized adolescents

Diana Bennett, Patricia Kerig, Shannon Chaplo,  
Andrew McGee, and Brian Baucom  
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PTSD symptoms	Models	Numbing		Dysphoria	
	DSM-IV	King	Simms	5-Factor(Elhai)	
B1: intrusive thoughts	R	R	R	R	R
B2: nightmares	R	R	R	R	R
B3: reliving trauma	R	R	R	R	R
B4: emotional cue reactivity	R	R	R	R	R
B5: physiological cue reactivity	R	R	R	R	R
C1: avoidance of thoughts	A/N	A	A	A	A
C2: avoidance of reminders	A/N	A	A	A	A
C3: trauma-related amnesia	A/N	N	D	N	N
C4: loss of interest	A/N	N	D	N	N
C5: feeling detached	A/N	N	D	N	N
C6: feeling numb	A/N	N	D	N	N
C7: hopelessness	A/N	N	D	N	N
D1: difficulty sleeping	H	H	D	DA	DA
D2: irritable/angry	H	H	D	DA	DA
D3: difficulty concentrating	H	H	D	DA	DA
D4: overly alert	H	H	H	AA	AA
D5: easily startled	H	H	H	AA	AA

Note. R, reexperiencing; A, avoidance; N, numbing; H, hyperarousal; D, dysphoria; DA, dysphoric arousal; AA, anxious arousal.

# Limitations of Previous Research

- ▶ Conclusions based on small statistical differences in fit indices
  - Need to examine predictive validity
- ▶ Few studies of children and adolescents
- ▶ Inconsistent attention to the role of gender
- ▶ Studies based on singular traumatic events
  - Importance of examining interpersonal trauma


# The Contribution of Juvenile Justice-Involved Youth

- ▶ More than 90% have experienced a traumatic event, average of 14 in lifetime (Abram et al., 2004)
- ▶ Rates of PTSD 2–8x greater than general population (Wolpaw & Ford, 2004)
- ▶ PTSD linked with recidivism (Becker, Kerig, Lim, & Ezechukwu, 2012)






# Predictive Validity of Factors


- ▶ Provide more meaningful justification for model preference
  - ▶ Links to issues such as depression, substance use, suicidal ideation, anger, and somatic complaints can help target treatment
  - ▶ Better understand comorbid disorders
  - ▶ For JJS youth, results hold additional implications
- 



# Goals of the Current Study

- ▶ Which model fits best?
  - ▶ How are factors of the best-fitting model differentially associated with types of trauma exposure?
  - ▶ How are factors of the best-fitting model associated with mental health problems?
    - Depression/anxiety, anger/irritability, somatic complaints, substance use, suicidal ideation
- 

# Participants

- ▶ 1,363 youth (990 boys, 373 girls)
  - ▶ Recruited from 2 juvenile detention centers in the West and Midwest
  - ▶ Ages 11–18 ( $M=15.56$ ,  $SD=1.41$ )
  - ▶ 65% European American
  - ▶ 20% African American
  - ▶ 9% Latino
  - ▶ 3% Multiracial
  - ▶ 1% Pacific Islander/Native Hawaiian
  - ▶ 1% Native American/Alaskan Native
- 

# Measures

- ▶ Trauma exposure (PTSD–RI; Pynoos et al., 1998)
  - Interpersonal (e.g., assault, child abuse, rape)
  - Non–interpersonal (e.g. natural disasters, accidents)
- ▶ Simple PTSD (PTSD–RI; Pynoos et al., 1998)
  - 0 (none) to 4 (most of the time) in past month
  - Cluster B: Reexperiencing ( $\alpha = .84$ )
  - Cluster C: Avoidance ( $\alpha = .80$ )
  - Cluster D: Hyperarousal ( $\alpha = .70$ )

# Measures

- ▶ Mental health problems (MAYSI-2; Grisso & Barnum, 2003)
  - Depressed/Anxious ( $\alpha = .73$ )
    - “Have nervous or worried feelings kept you from doing things you want to do?”
    - Alcohol/Drug ( $\alpha = .82$ )
      - “Have you gotten in trouble you when you’ve been high or have been drinking?”
  - Anger/Irritability ( $\alpha = .81$ )
    - “Have you hurt or broken something on purpose, just because you were mad?”
  - Somatic Complaints ( $\alpha = .76$ )
    - “Have you had bad headaches?”
  - Suicidal Ideation ( $\alpha = .79$ )
    - “Have you felt like killing yourself?”

# Gender Differences

	Boys (M, SD)	Girls (M, SD)	<i>t</i>
Interpersonal Trauma Exposure	2.52 (1.63)	3.02 (1.85)	4.53**
Non-Interpersonal Trauma Exposure	0.78 (0.91)	0.86 (0.91)	1.45
Intrusion	5.56 (4.89)	8.13 (5.44)	7.62**
Avoidance	4.75 (5.08)	5.74 (5.40)	2.72**
Numbing	7.37 (5.93)	9.96 (6.47)	6.06**
Anxious Arousal	2.92 (2.15)	3.55 (2.16)	4.14**
Dysphoric Arousal	7.22 (3.86)	8.99 (3.83)	6.54**

\* $p < .05$ . \*\* $p < .01$ .

# Gender Differences

	Boys (M, SD)	Girls (M, SD)	<i>t</i>
Alcohol / Drug	2.43 (2.40)	2.61 (2.42)	0.95
Anger / Irritability	3.08 (2.64)	4.05 (2.64)	4.62**
Depressed / Anxious	1.93 (2.04)	2.92 (2.23)	5.95**
Somatic Complaints	2.59 (1.95)	3.68 (1.85)	7.13**
Suicidal Ideation	0.59 (1.15)	1.17 (1.66)	5.65**

\* $p < .05$ . \*\* $p < .01$ .

# Which Model Fits Best?

	Model	CFI/TLI	RMSEA	SRMR	X <sup>2</sup> (df)
Worst-fitting	3-Factor DSM	.84/.82	.072	.068	1517.14 (249)
	4-Factor Dysphoria	.90/.89	.056	.050	1006.48 (246)
	4-Factor Numbing	.92/.91	.052	.050	897.73 (246)
Best-fitting	5-Factor Dysphoric Arousal	.92/.91	.051	.048	857.35 (242)
	Adequate fit	>.90	<.08	<.08	
	Good fit	>.95	<.05	<.05	

# How is 5-factor model related to trauma and mental health?

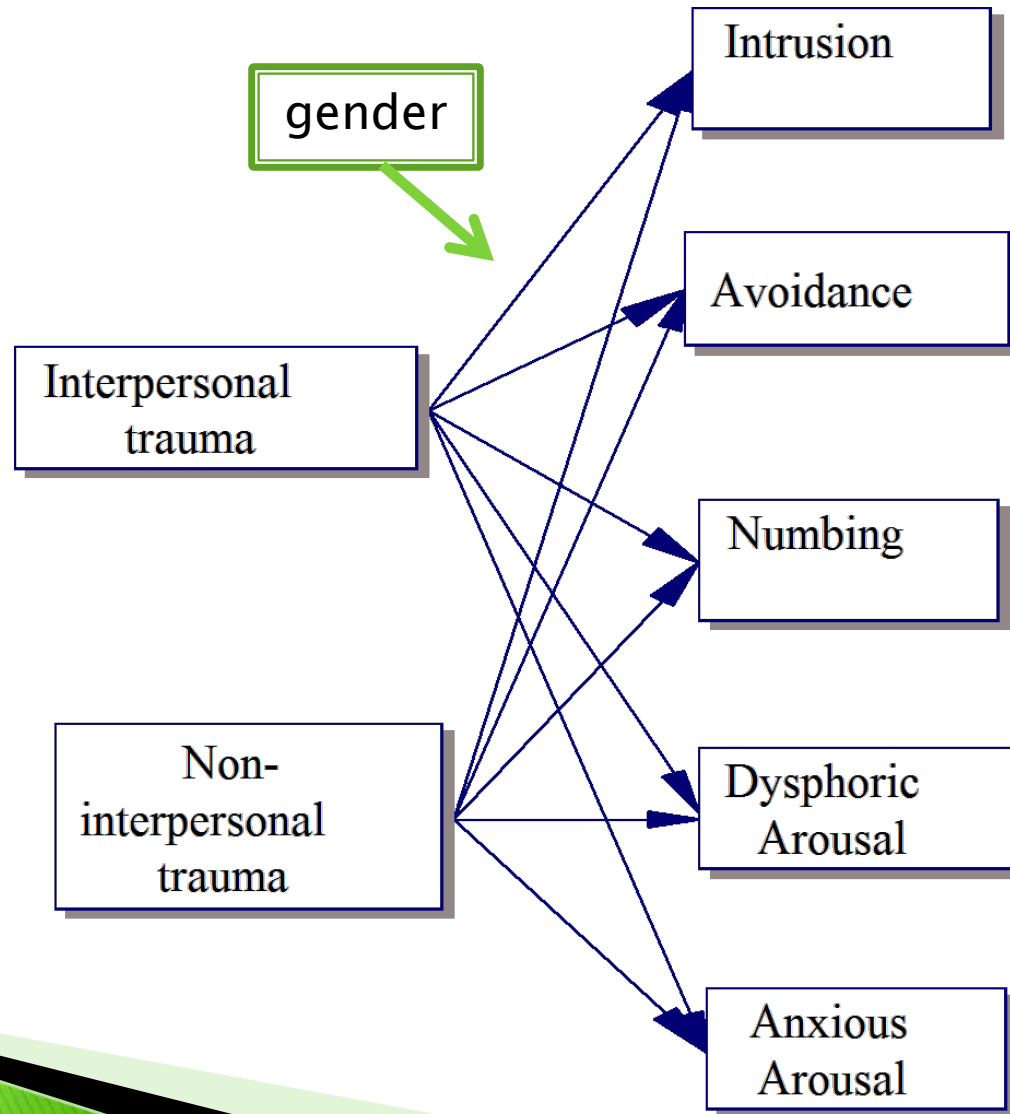
- ▶ Path model evidenced good fit
  - MLR estimator in Mplus version 6.11 (Muthen & Muthen)

5-Factor Model	CFI	RMSEA	SRMR	$\chi^2$ (df)	Scaling Correction Factor
Path Model (MLR)	.996	.030	.023	22.18 (10)	1.054

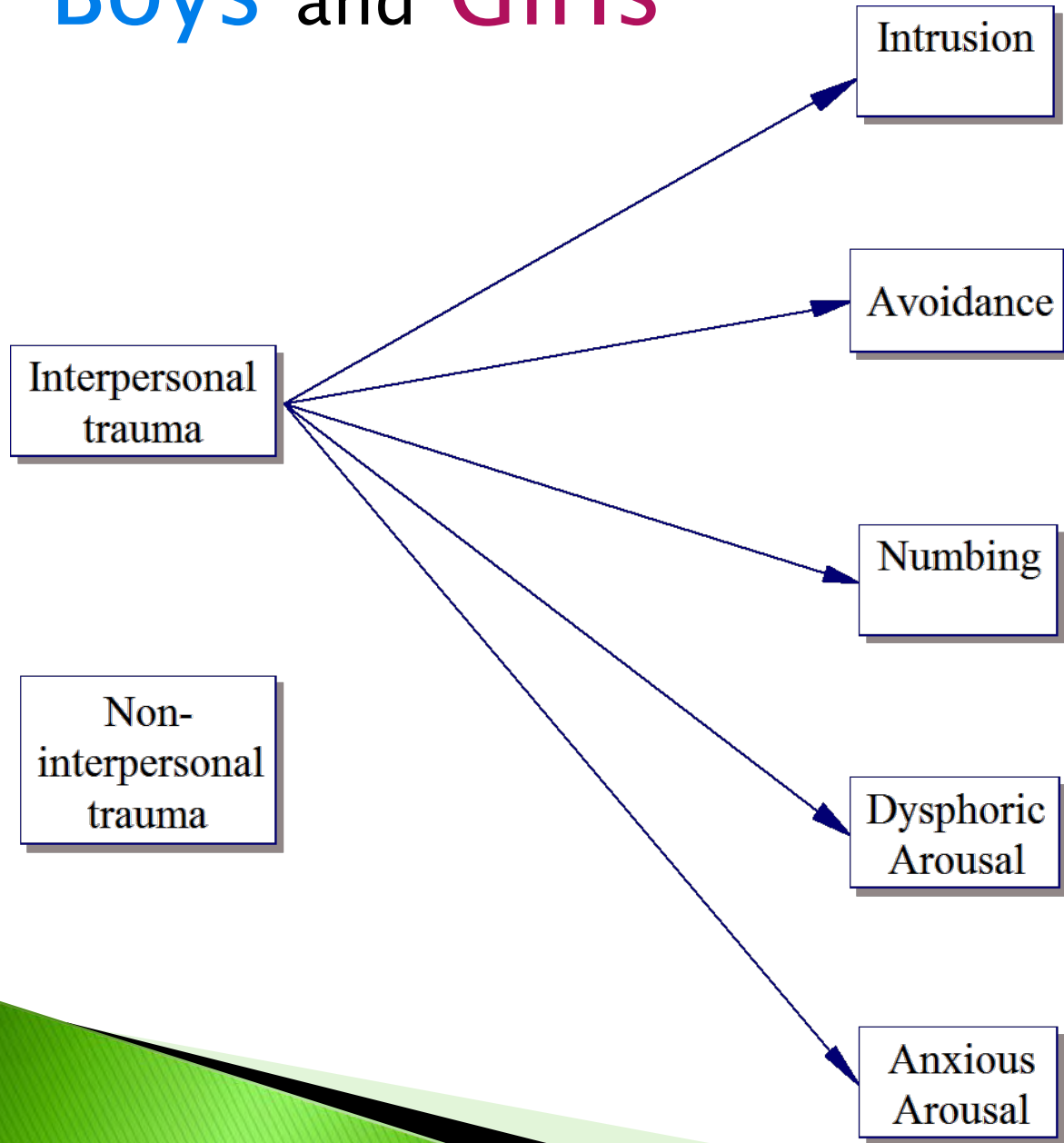
Adequate fit	>.90	<.08	<.08
Good fit	>.95	<.05	<.05



# How is trauma related to PTSD symptoms?

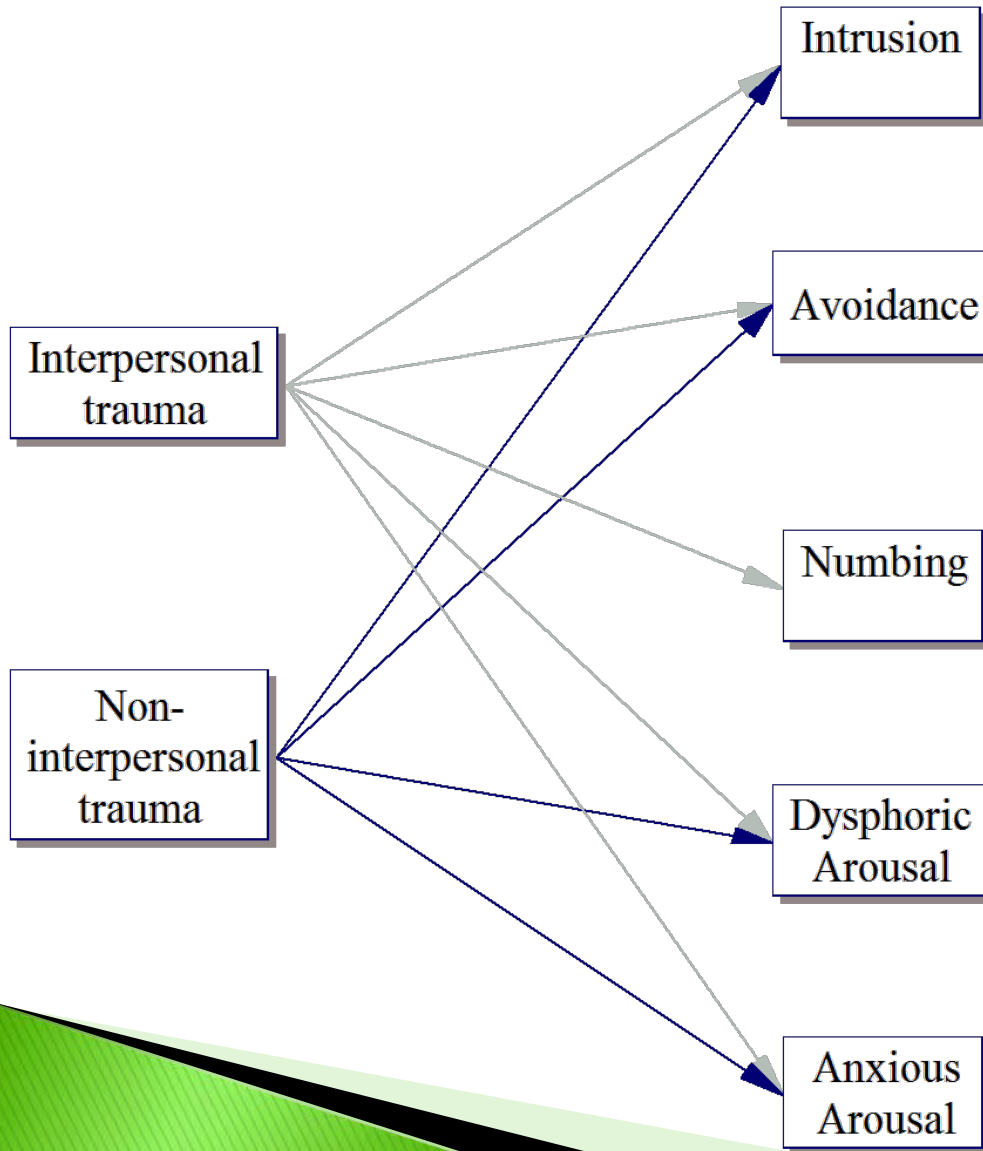


# Boys and Girls



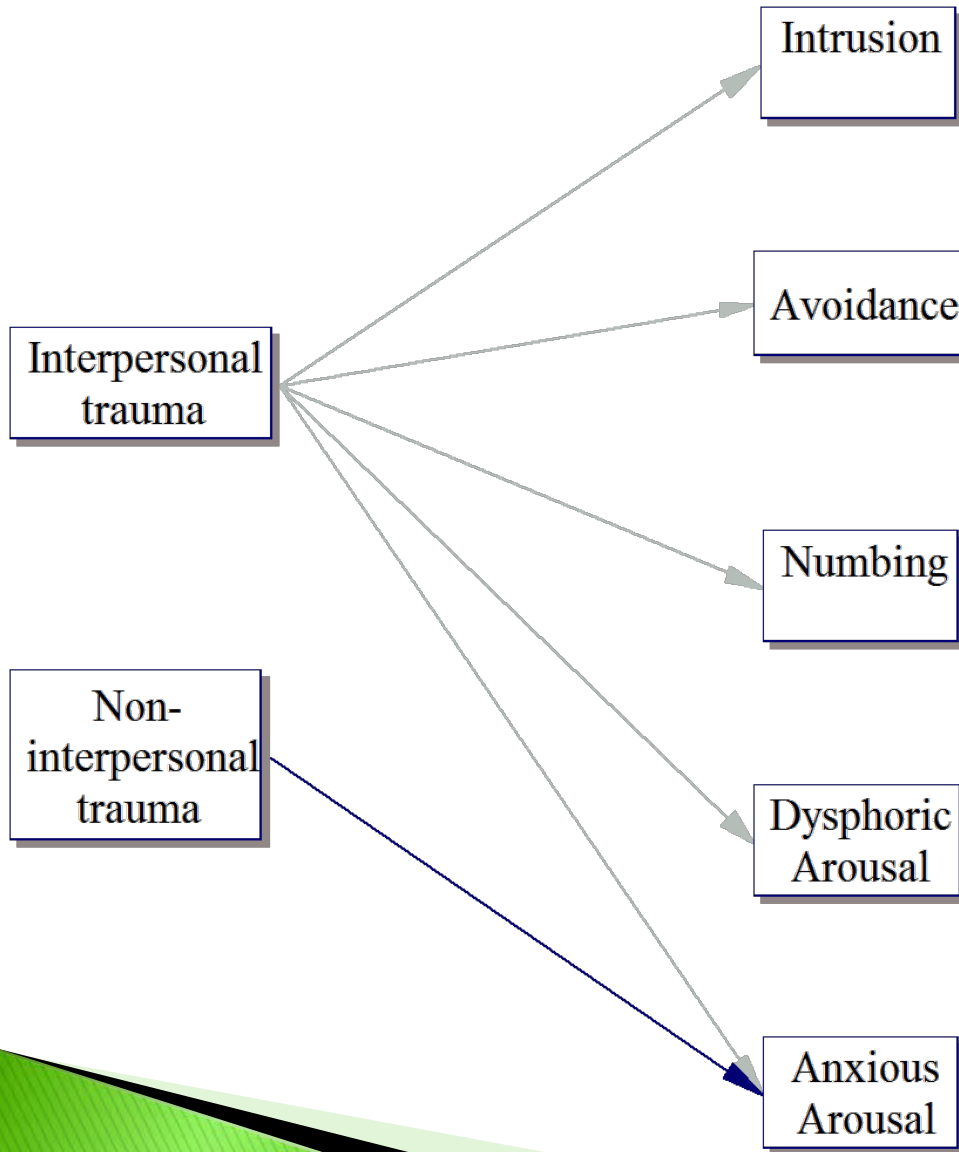
Interpersonal  
Trauma →  
PTSD  
Symptoms

# Boys



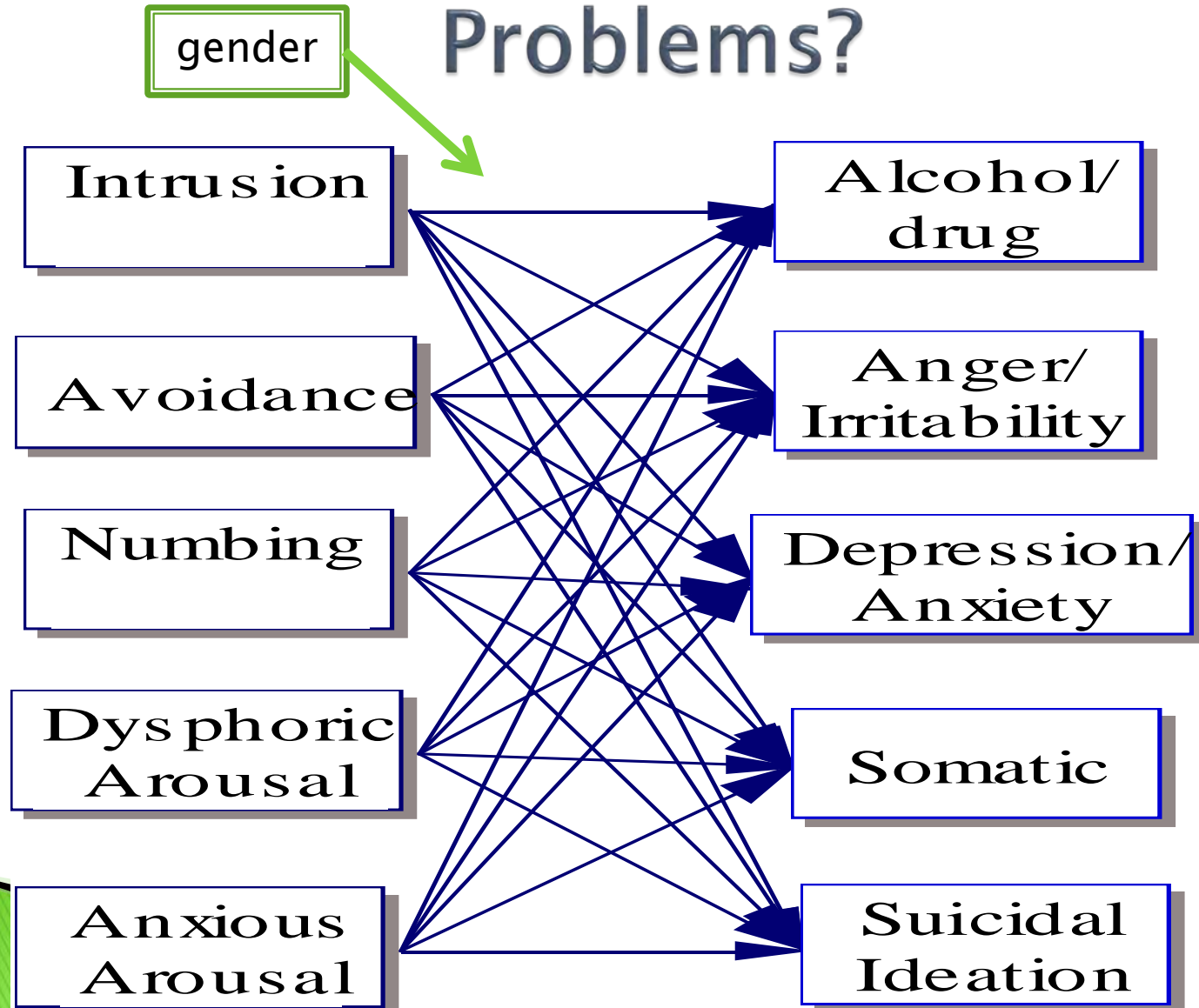
Non-  
Interpersonal  
Trauma →  
PTSD  
Symptoms

# Girls



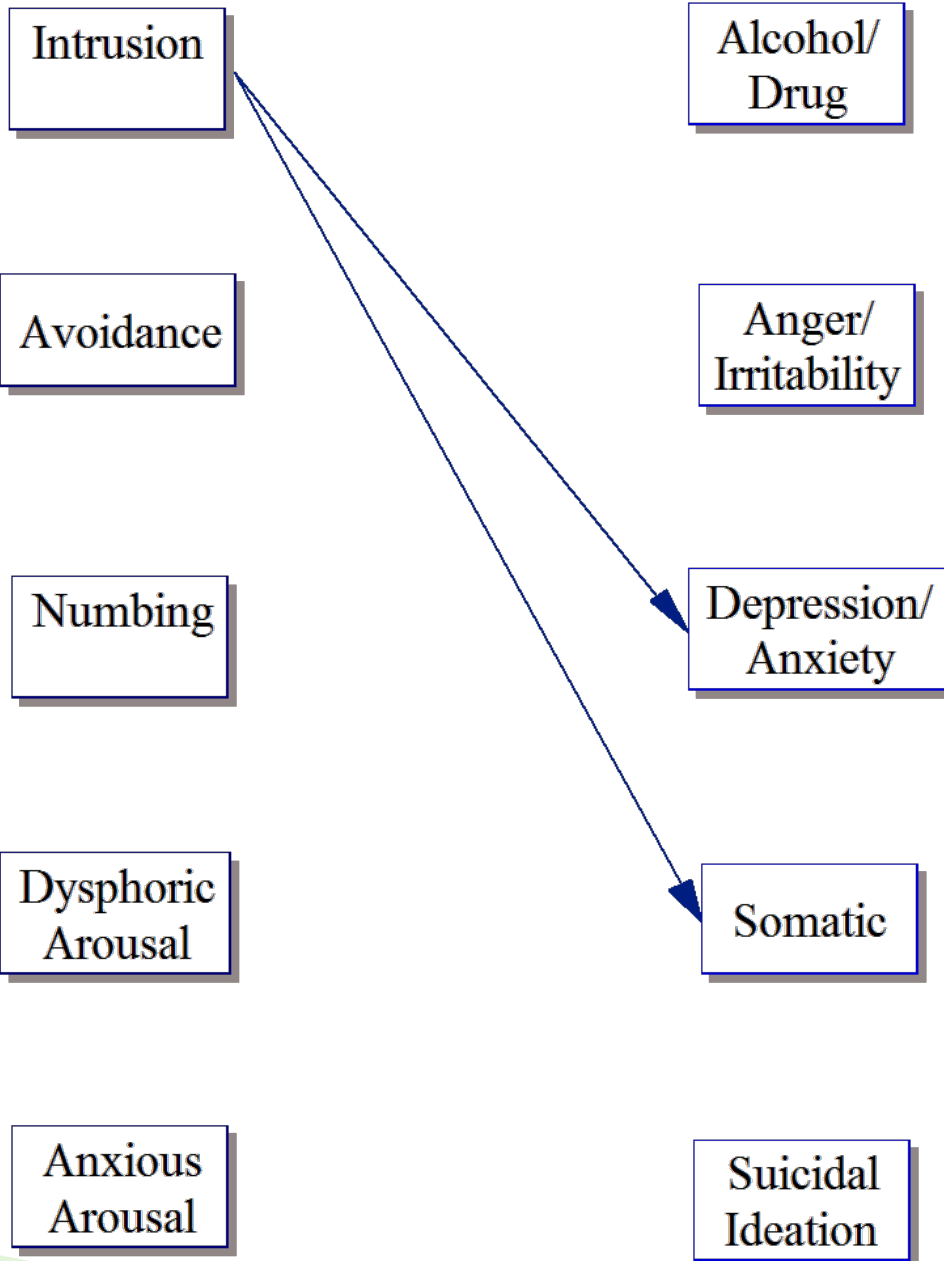
Non-  
Interpersonal  
Trauma →  
PTSD  
Symptoms

# How is the 5-Factor Model Associated with Mental Health Problems?



# Boys

Intrusion →  
Mental  
Health  
Problems



# Girls

Intrusion

Alcohol/  
Drug

Avoidance

Anger/  
Irritability

Intrusion →  
Mental  
Health  
Problems

Numbing

Depression/  
Anxiety

Dysphoric  
Arousal

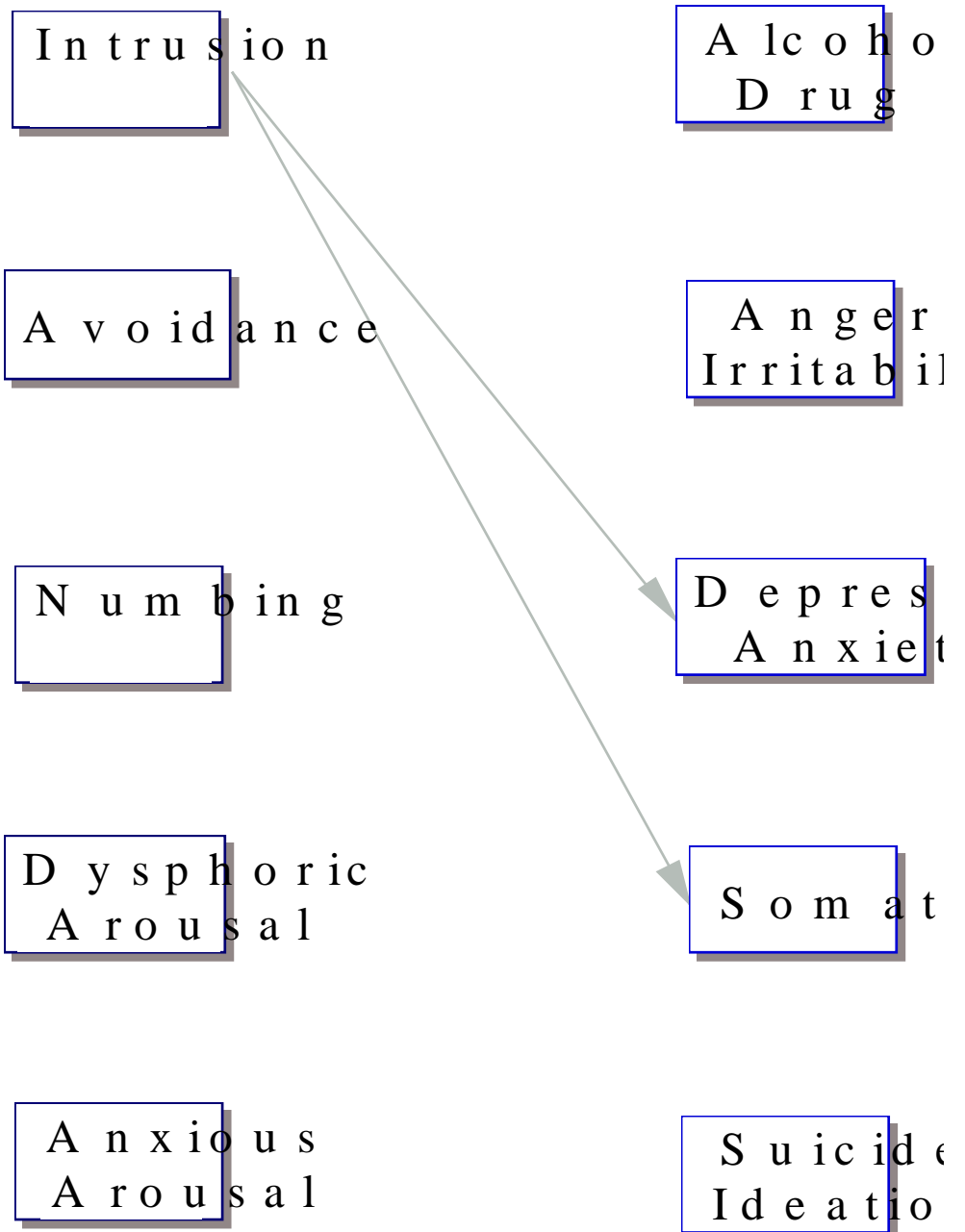
Somatic

Anxious  
Arousal

Suicidal  
Ideation

# Boys

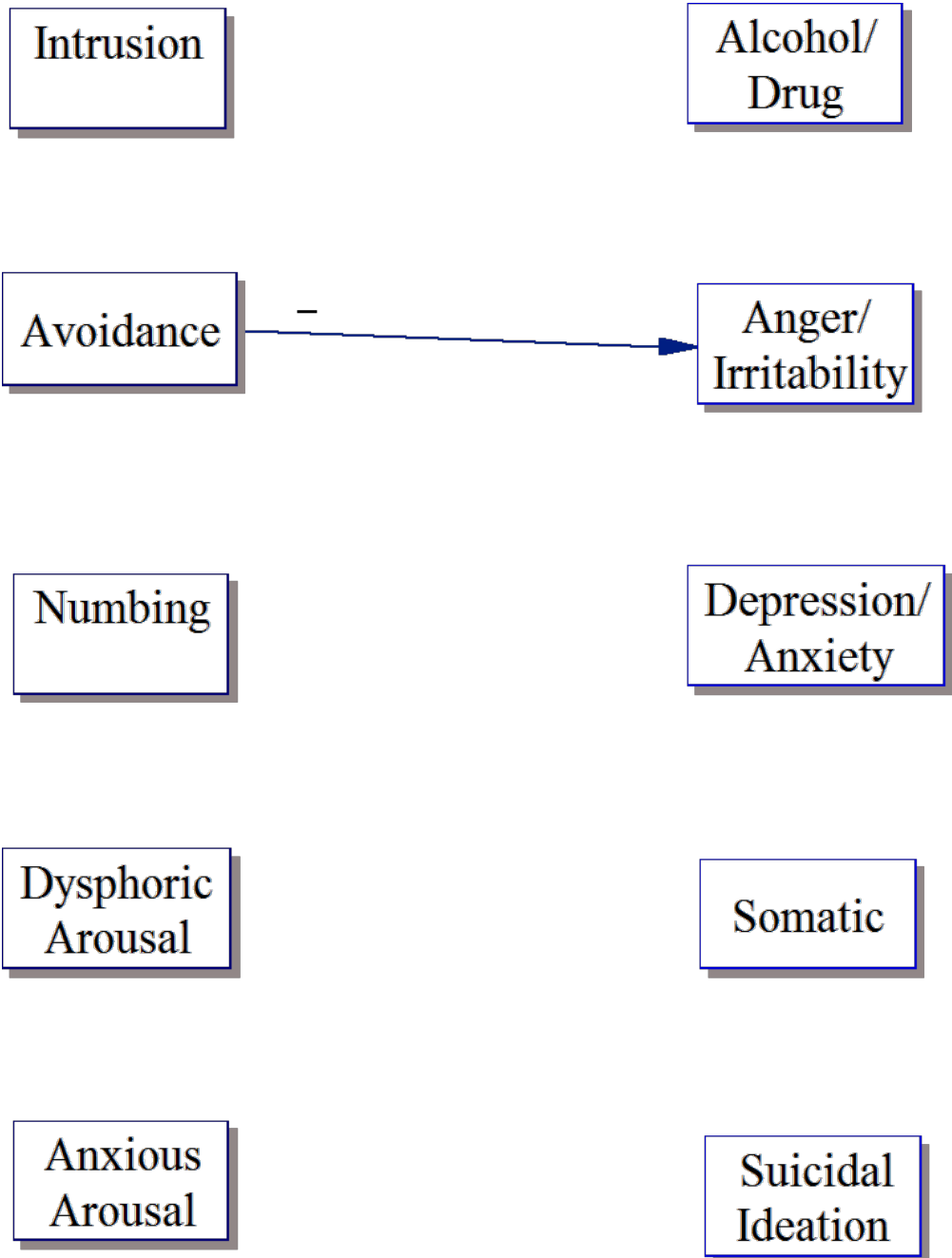
Avoidance →  
Mental  
Health  
Problems





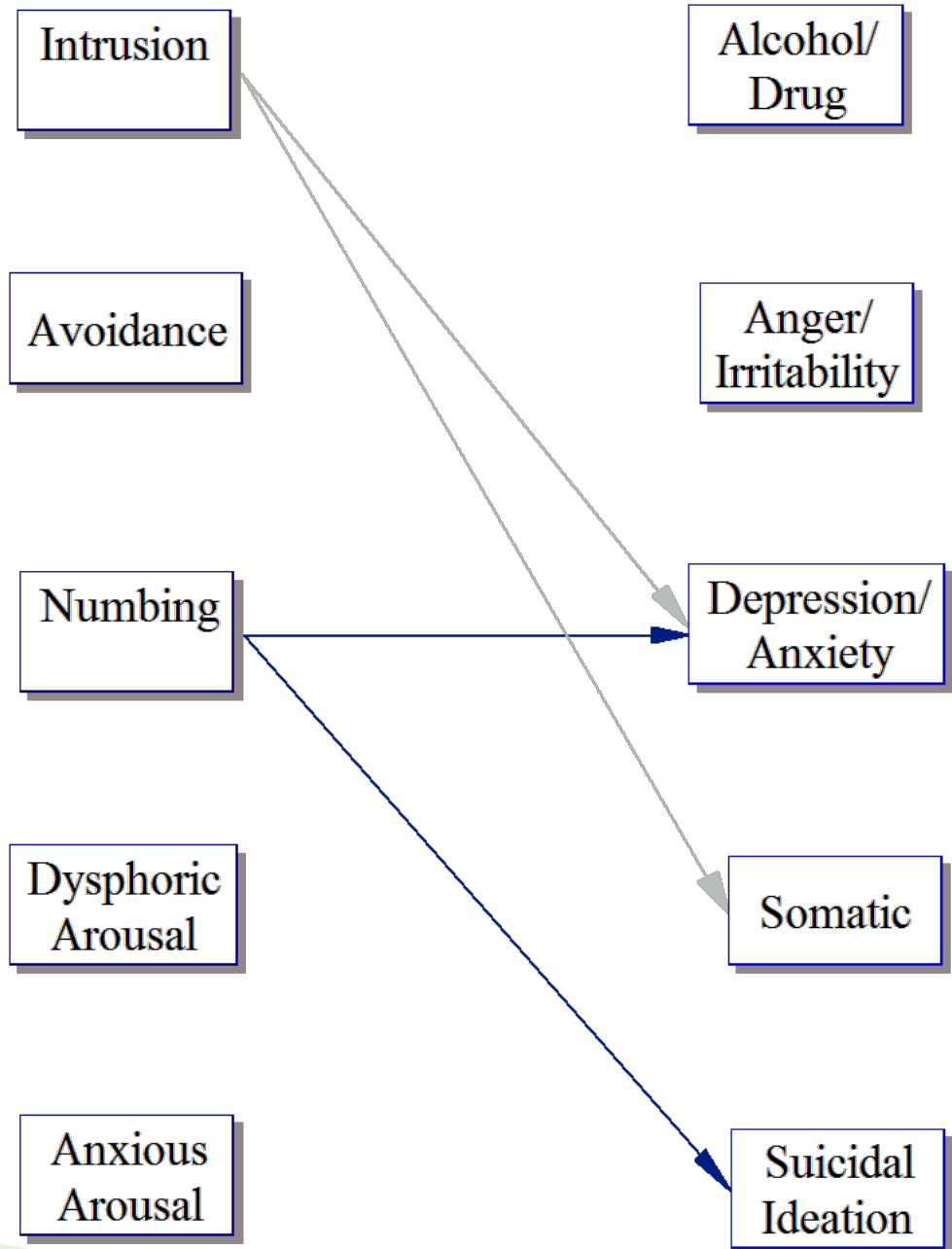
# Girls

Avoidance →  
Mental  
Health  
Problems



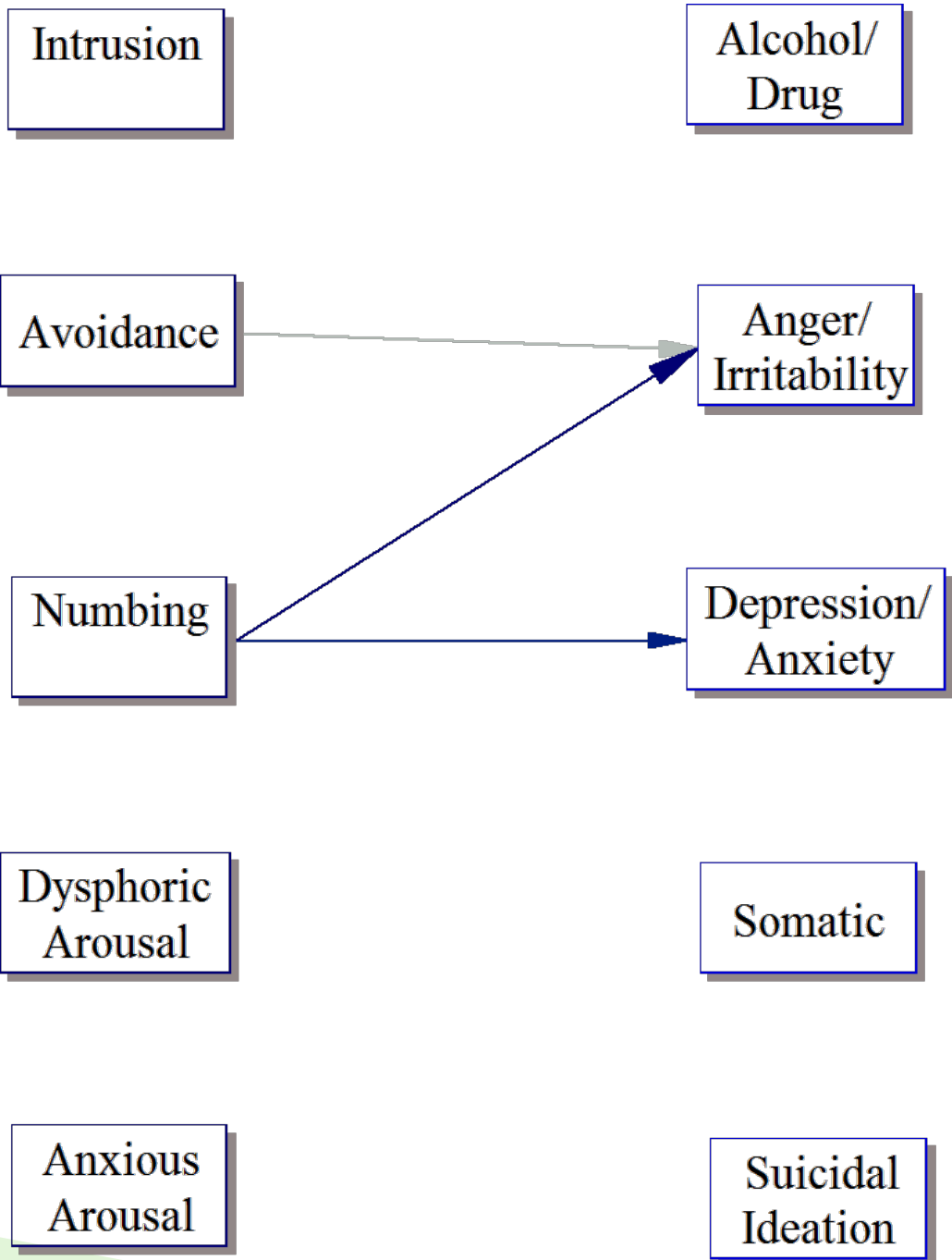
# Boys

Numbing →  
Mental  
Health  
Problems



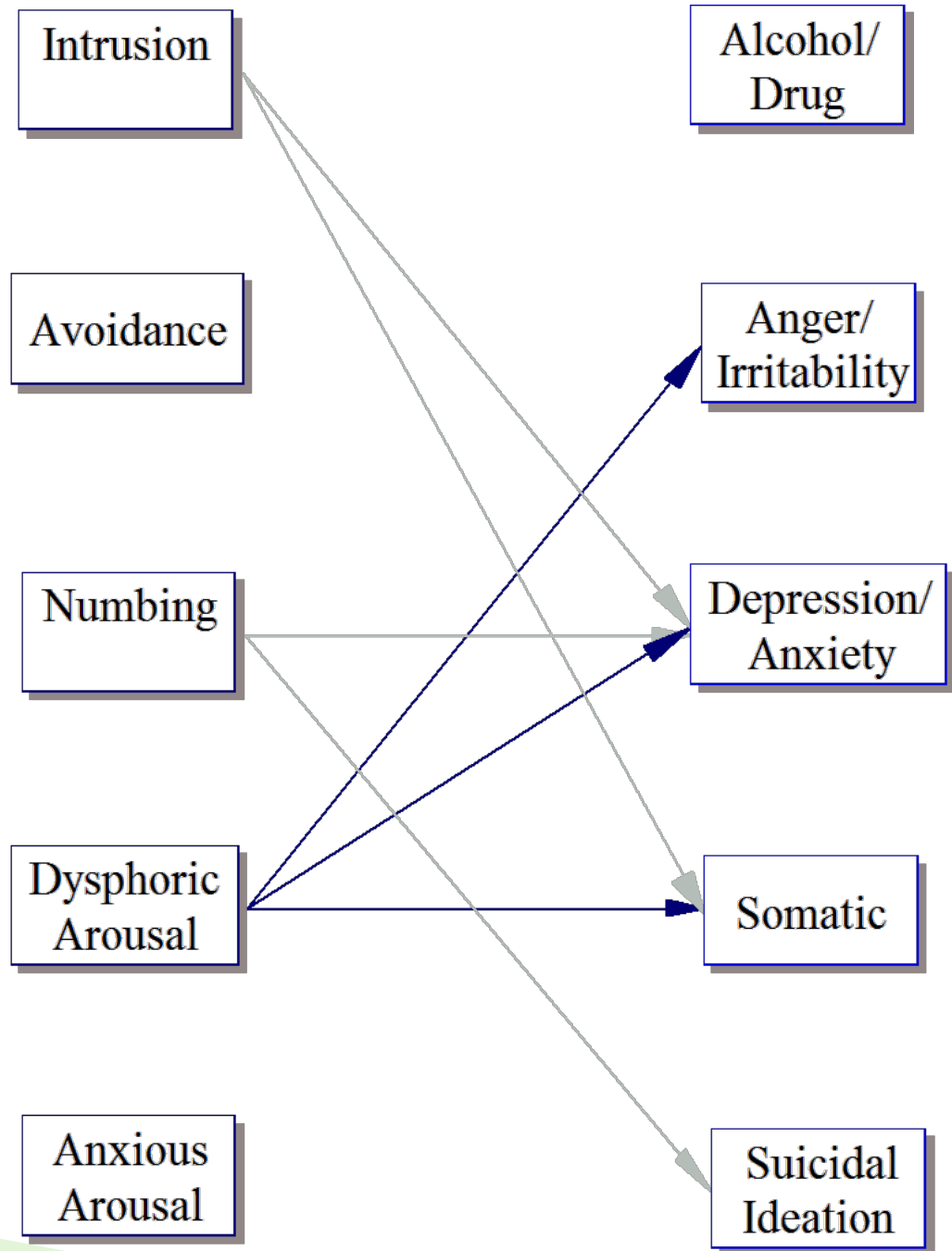
# Girls

Numbing →  
Mental  
Health  
Problems



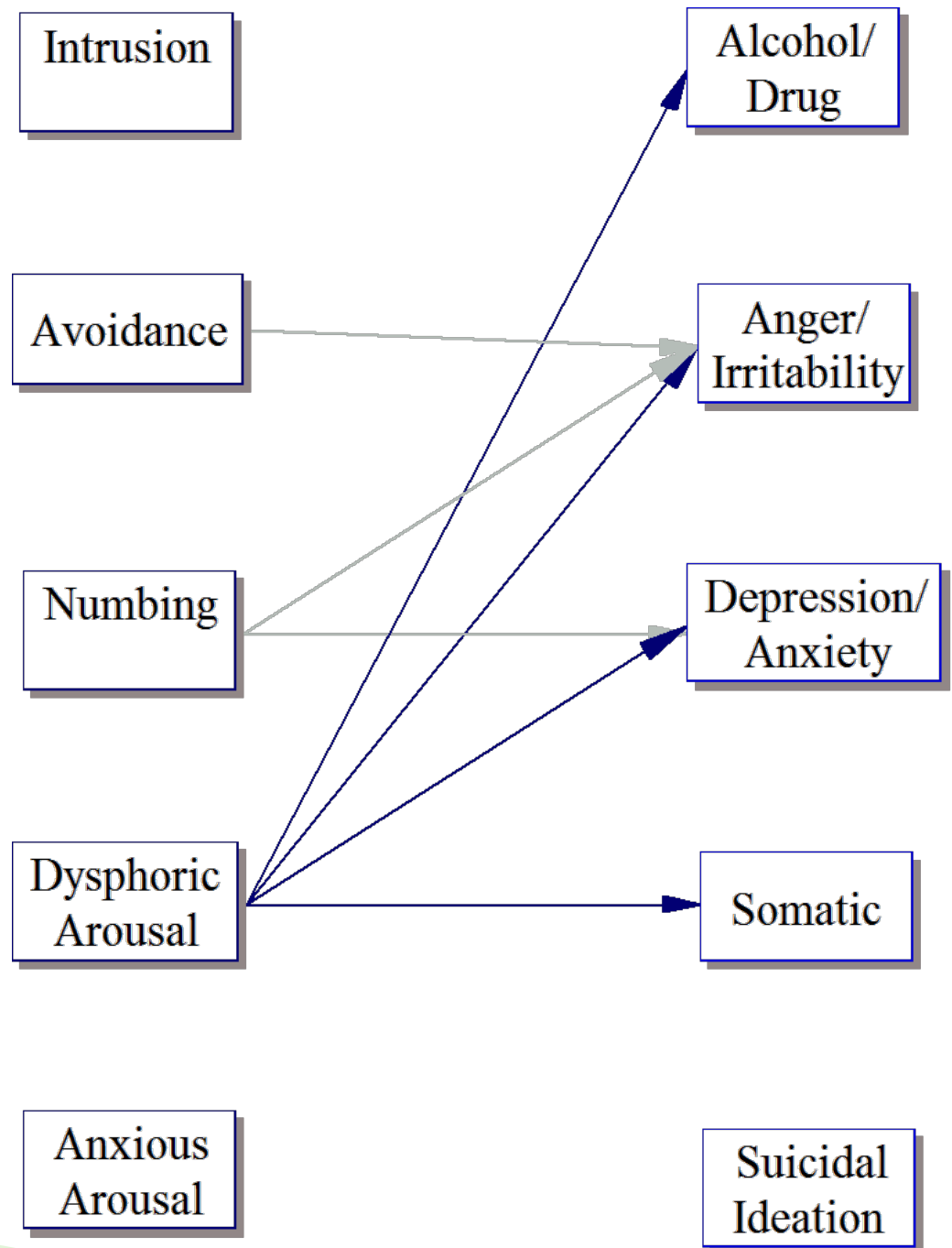
# Boys

Dysphoric  
Arousal →  
Mental  
Health  
Problems



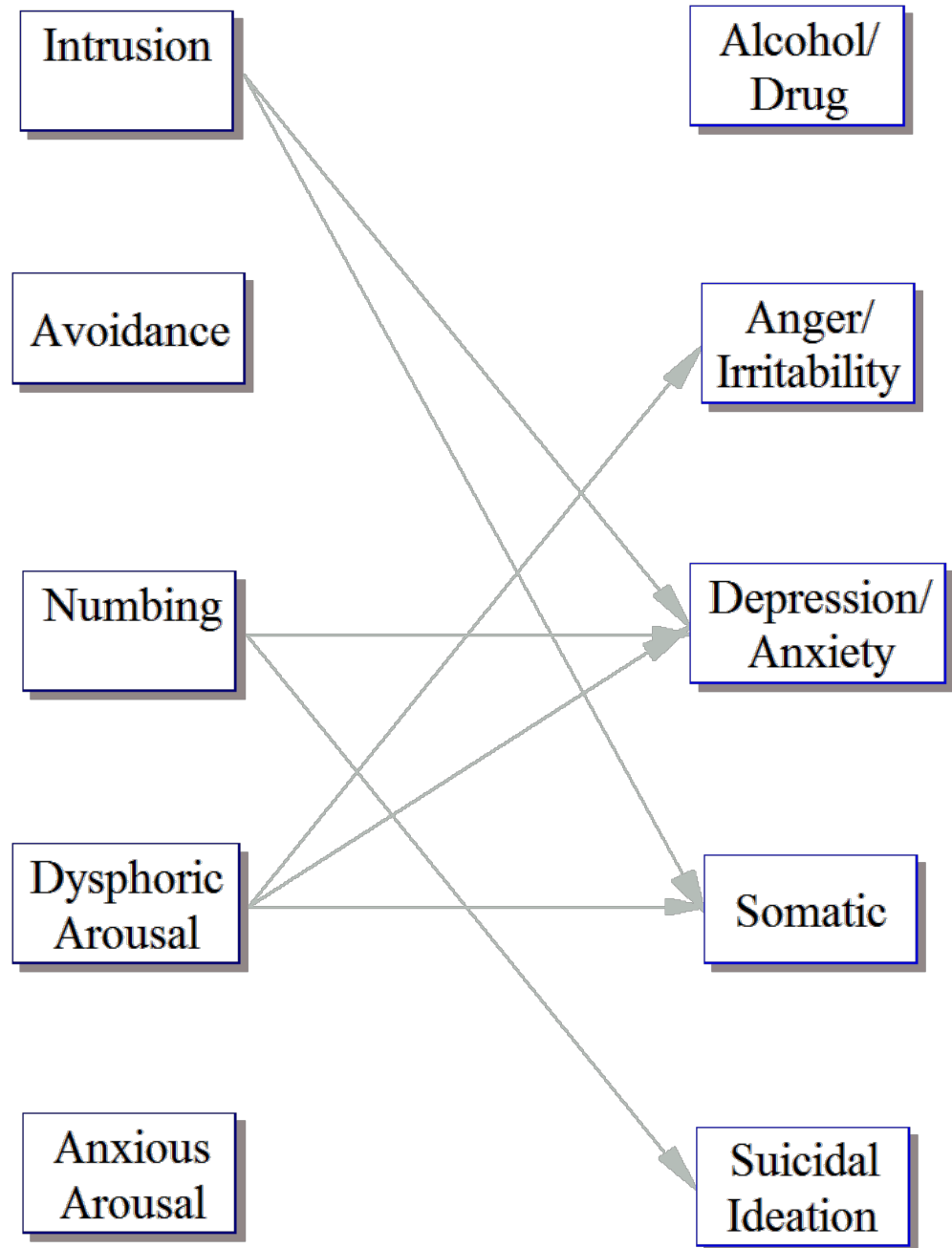
# Girls

Dysphoric  
Arousal →  
Mental  
Health  
Problems



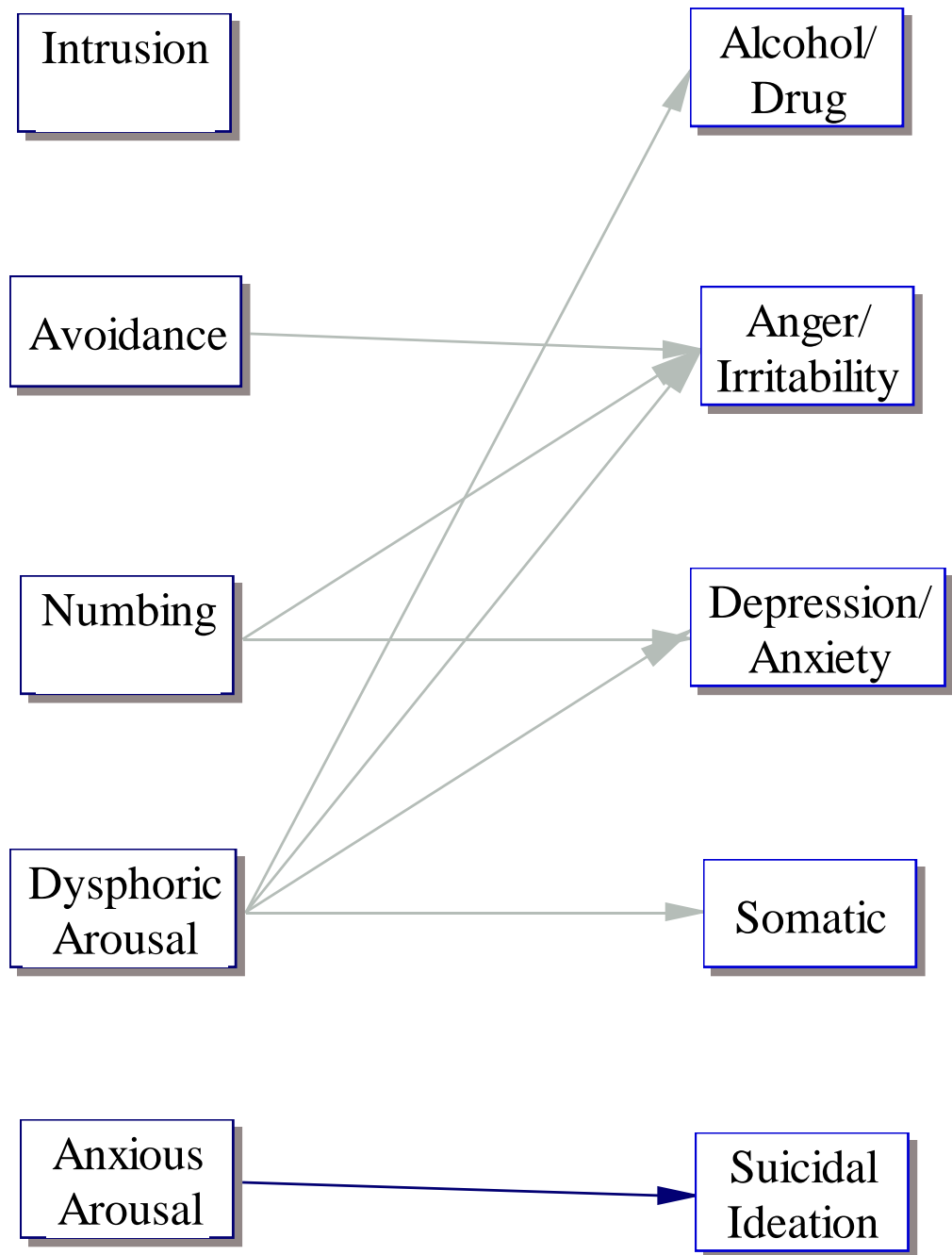
# Boys

Anxious  
Arousal →  
Mental  
Health  
Problems



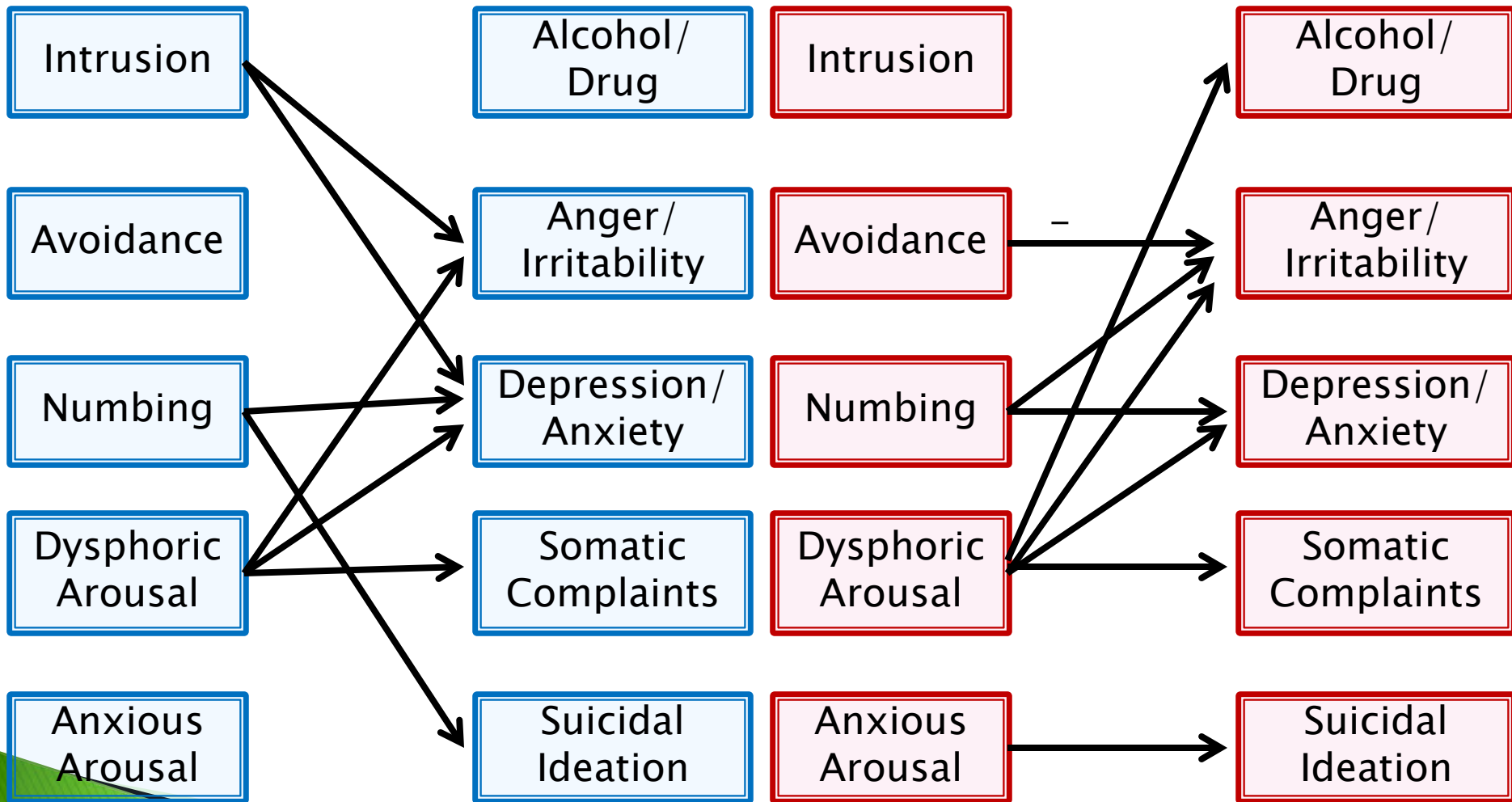
# Girls

Anxious  
Arousal →  
Mental  
Health  
Problems



# Boys

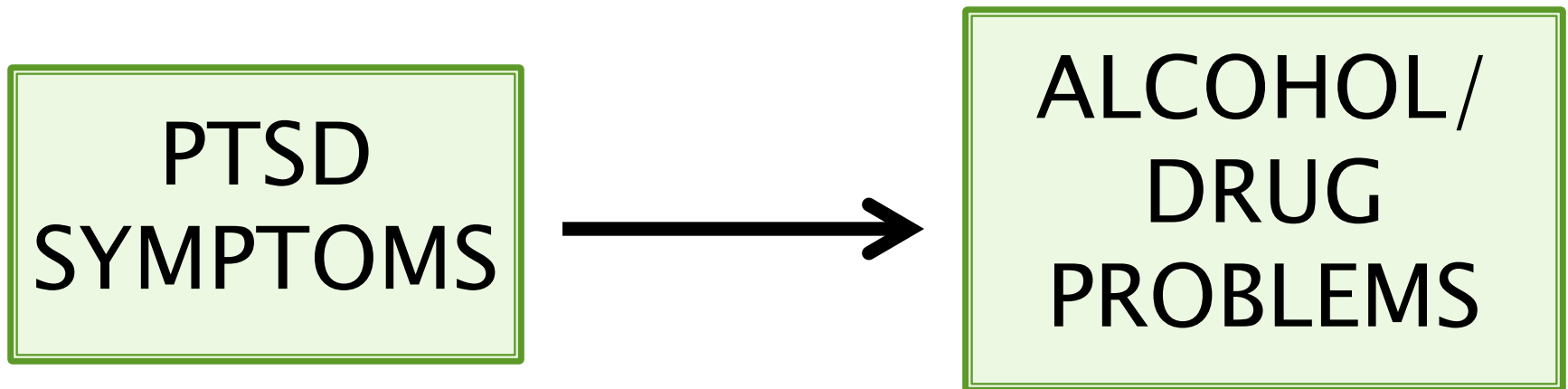
# Girls





# Moderation by Gender

No difference between girls and boys



# Moderation by Gender

Stronger for **BOYS** than GIRLS

PTSD  
SYMPTOMS

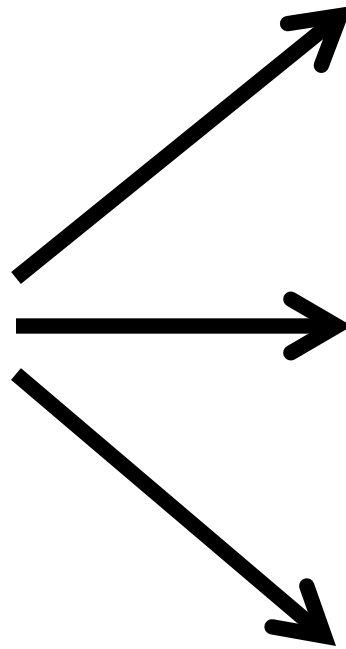


ANGER/  
IRRITABILITY

# Moderation by Gender

Stronger for **GIRLS**  
than BOYS

PTSD  
SYMPTOMS



DEPRESSION/  
ANXIETY


SOMATIC  
COMPLAINTS

SUICIDAL  
IDEATION

# Conclusions

- ▶ DSM tripartite structure is not ideal
- ▶ Symptoms can interfere with functioning without meeting full DSM-IV criteria (Cohen & Scheeringa, 2009)
- ▶ 5-factor Dysphoric Arousal model fits best
  - Support for distinction between dysphoric and anxious arousal
- ▶ Associated with experience of both interpersonal and non-interpersonal trauma exposure
- ▶ Girls and boys each show effects of PTSD
  - Important implications for JJS youth, especially girls (Zahn, Hawkins, Chiancone, & Whitworth, 2008)

# Future Directions

- ▶ Distinction between self-harm and suicidal ideation
  - ▶ Effects of age on mental health problems
  - ▶ Investigation of severity of delinquency as an outcome
- 

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- University of Utah Risk to Resilience Lab
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