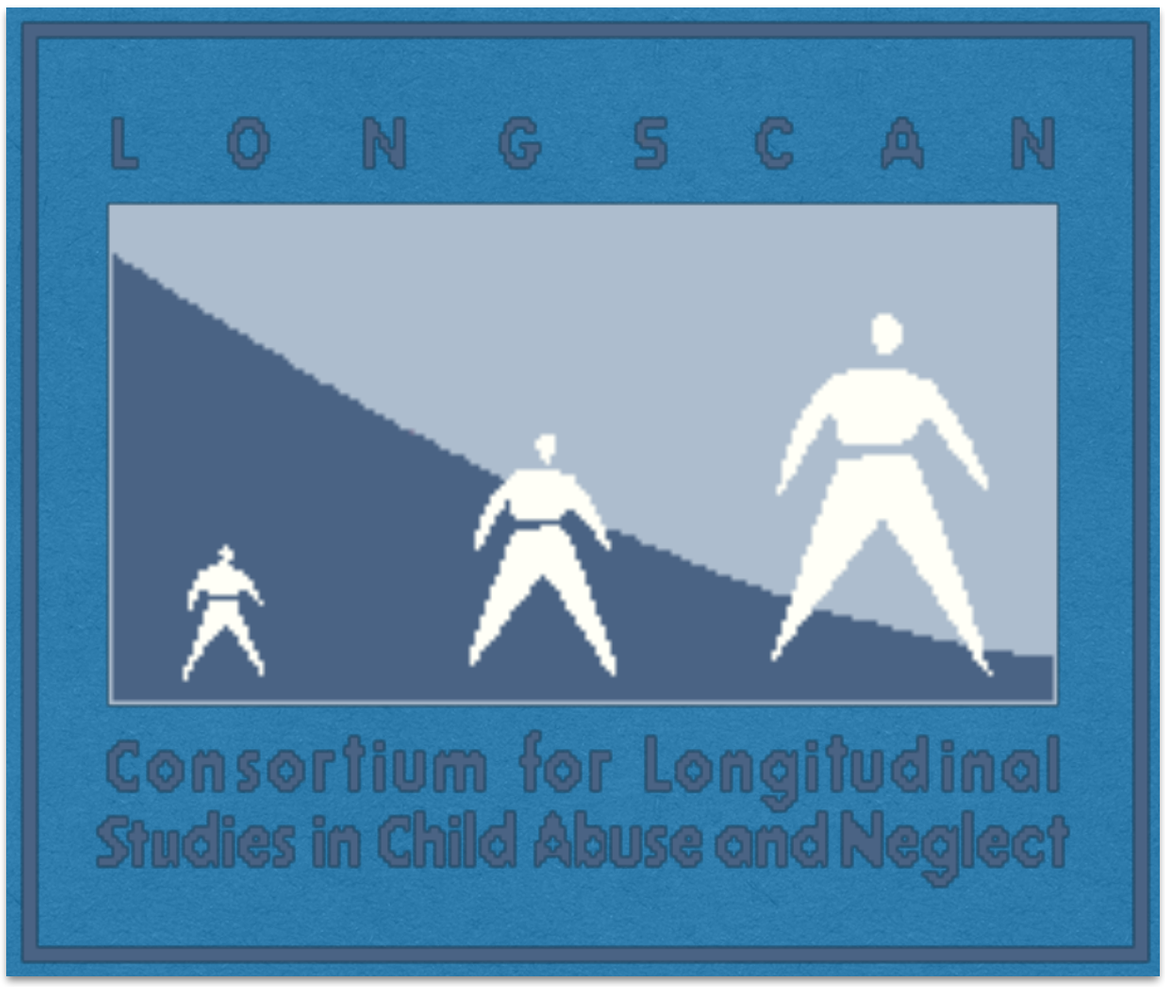
LONGSCAN Measures: Selection, Construction, & Use



- Alan Litrownik, PhD
- (San Diego State University)
- for the LONGSCAN Consortium Investigators

The LONGSCAN View

Objective

Importance of knowing dataset if plan to use

- Where it came from and for what purpose

Heard from Des about the study, its design, samples, and objectives

I will talk about the Measures

- General Principles for how they were developed
- Given your interests will describe some of the measures and how we've used them

Terri will follow with specifics about the dataset structure and issues you will need to know about

First Recognize—Change is The Curse of Longitudinal Studies

Interests change

- Effects of movie and TV violence, School Violence, Terrorism, Rap Music, Videogames, Internet Abuse

Measures change

- Go with same measure or new possibly better measure?

People change

Once Start Down the Road It's Difficult to Change Course!

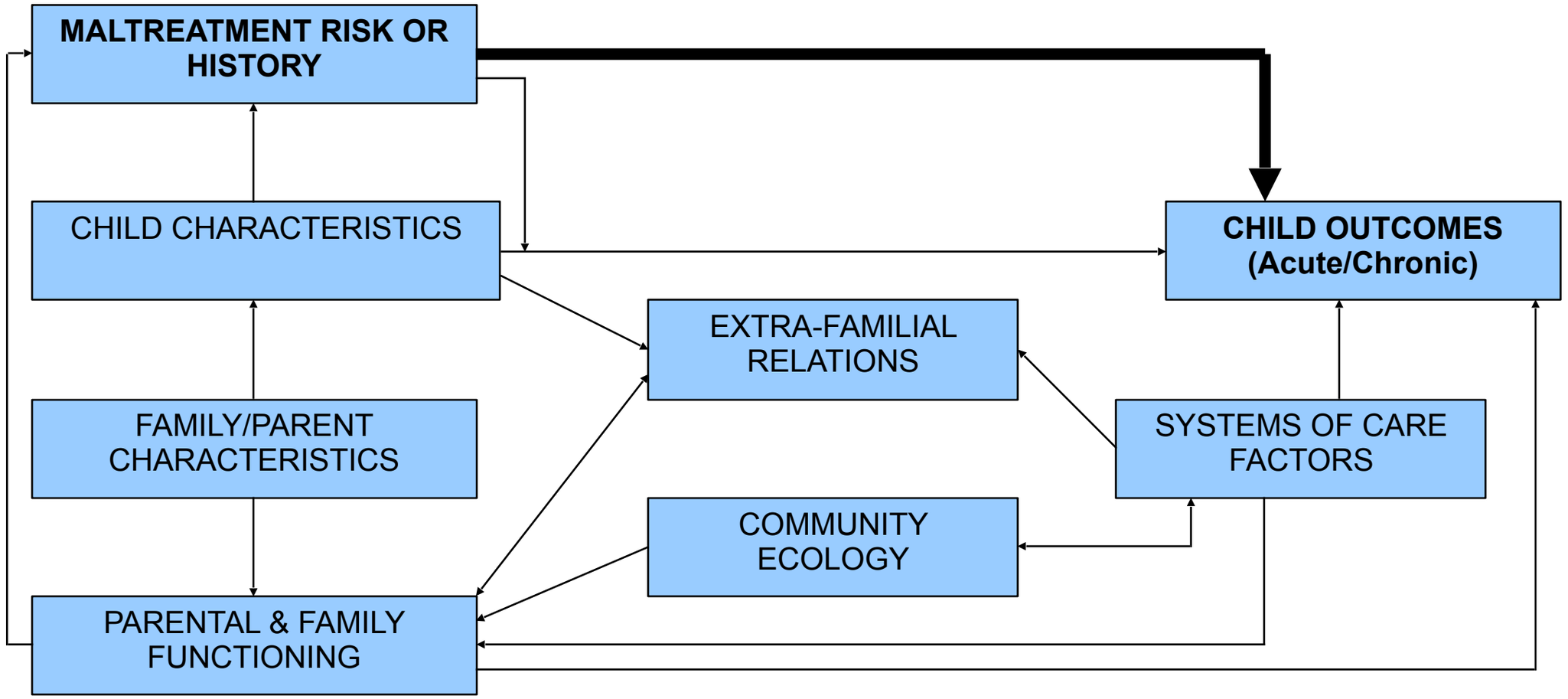
Measurement

Guided by Social-Developmental-Ecological Theory

Domains Assessed

- Child/Youth: Characteristics, Functioning
- Caregiver: Characteristic, Functioning
- Family Microsystem: Home environment, Functioning
- Macrosystem: Neighborhood, School, Support

Developmental-Ecological Model



Context & Assessments

EXTRAFAMILIAL ENVIRONMENT

FAMILY ENVIRONMENT

Child

AGE 4 6 8 12 14 16 18

DEVELOPMENTAL LIFESPAN

8

Measurement: Methods

Multiple Sources & Methods for Assessing Domains (Child, Caregiver, Family, Community)

- Reports/Ratings/Questionnaires
  - Child/Youth
  - Caregiver
  - Teacher
- Performance
  - Child/Youth
- Situational tests/samples
- Official Records (CPS)

Presentation of Measures

- Interview & A-CASI

Criteria for Selecting Measures

Assess domains from Developmental-Ecological theory

Whenever possible, measures are:

- Developmentally appropriate
- Easy to use
- Culturally sensitive
- Repeatable
- Valid

Focus on What We've Done

Introduce measures and methods

Try to touch on your interests

- Maltreatment (All)
- Outcomes/Trajectories (Behavior Problems, Physical Health, Resilience)
- Additional Risk Factors
  - Caregiver (Mental Health, Parenting, Substance Use, Incarceration, History of Victimization)
  - Family (Separations)
- Possible Protective Factors
  - Service Utilization
  - Caregiver Stability, Child Cognitive, Support

Start with Maltreatment

Using CPS records

- Methods
- Examples of publications

Self-Reports

- Methods
- Examples of publications

Application of Latent Variable Modeling approaches

Measures of Maltreatment: CPS reports

MCS (Barnett et al., 1993)

Methods

- Report Summary
  - Allegation narrative of the report
  - Summary narrative including description of the conclusions drawn from the investigation
- Code each report for
  - Type (sexual, physical, emotional abuse; neglect-los & ftp)
  - Severity
  - Substantiation
  - Have date

MMCS (LONGSCAN)

Characterizations of Maltreatment

Simple maltreated/not maltreated

Need to expand

8 papers in CAN special issue

First issues

- Relationship of taxonomies and CPS designations
- Allegations versus Substantiations

Then dimensions (ways to characterize)

Outcomes (Age 8)

Behavioral

- CBCL (3 Broad-band and 9 Narrow-band Scales)

Emotional

- TSC (5 Scales)

Adaptive Functioning

- Vineland Screener
  - Adaptive Behavior and Socialization Scales

Classification Systems: Comparability

Typical CPS

National Incidence Study (NIS) III

MMCS

Findings

- MMCS and NISIII comparable, both differ from typical CPS
- MMCS and NIS-2 classification of physical abuse and sexual abuse were stronger predictors of emotional and behavioral functioning of children. (Runyan et al. (2005)

Allegations versus Substantiations

- Differences on outcomes between reported vs. not reported, but no differences between substantiated vs. not substantiated (Hussey et al., 2005).

- No differences
    - Services received
    - Recidivism (subsequent reports)
- Suggest
    - Use allegations

Then: Multidimensionality of Child Maltreatment

Three CAN (May, 2005) papers

- Severity
- Type
- Timing

N=519 with at least one CPS report birth to Age 8
Modified MCS

- Date of report identified
- Type (SA, PA, LOS, FTP, Emotional) & Severity coded

Example of Severity

Longitudinal Design

*Birth – Age 4

Max Severity

PA
SA
EA
LOS
FTP

Age 4 Adjustment

CBCL

Battelle

Age 4 – Age 8

Max Severity

PA
SA
EA
LOS
FTP

Age 8 Adjustment

CBCL

TSC-A

Vineland

*Controls: Site, Gender, Income, Ethnicity

Findings: Severity

Early Maltreatment (Birth – 4)

- PA ⇒ Depression
- SA ⇒ Anger
- FTP ⇒ Daily Living Skills

Later Maltreatment (4 – 8)

- PA ⇒ Externalizing, Anger
- SA ⇒ Externalizing, Internalizing, Socialization

Further Clarification (Examples Looking at Timing)

Kotch et al. 2008

- Predictor
  - Early (Distal) Neglect and Abuse (birth-2); Later (Proximal) CPS Reports
- Outcome
  - Aggression at 4, 6, and 8; CBCL
- Controls
  - Gender, Age, Ethnicity, Caregiver Marital Status, Income, Caregiver Depression, Site
- Using hierarchical approach to general linear mixed modeling (GLMM)

Influence of Early and Later Maltreatment on Childhood Aggression at ages 4, 6 & 8

Predictor	Estimate (S.E.)	t	P
Early Neglect	**1.29 (0.46)**	**2.80**	**<.01**
Early Abuse	**0.66 (0.68)**	0.97	0.33
Later Neglect	**0.14 (0.34)**	0.42	0.68
Later Abuse	**0.53 (0.39)**	1.34	0.18

Notes. From Kotch et al., 2008.

N = 1,318; Model Chi-square = 858.49 ($p < .0001$).

Model includes child gender, child age, child race /ethnicity, caregiver marital status, caregiver education, income, caregiver depression, neighborhood safety, early neglect X early abuse, later neglect X later abuse, study site.

22

Further Clarification (Examples Looking at Timing)

Merrick et al. 2008

- Sample: n=439, exclude CPS allegation of Sexual Abuse
- Predictors
  - Early (birth to age 4)
    - Physical and Emotional Abuse, and Neglect
  - Later (age 4 to 8)
    - Physical and Emotional Abuse, and Neglect
- Outcome
  - CSBI (1992 version)
    - Domains boundary problems, exhibitionism, gender role behavior, self-stimulation, sexual interest, sexual intrusiveness, sexual knowledge, and voyeuristic behavior

Findings

Merrick et al. 2008

- Both early (birth to 4) and later (4 to 8) physical abuse were associated with more problem sexualized behaviors
- Pattern of relationships differed by gender
  - Physical abuse predicts
    - Exhibitionism and sexual intrusiveness in boys
    - Boundary problems in girls

Another Perspective: Moving Beyond CPS Report

Child/Youth Report (Age 12) (Abuse & Neglect)
LONGSCAN developed

- Presented A-CASI
- 18 screener items for Physical Abuse
  "Has an adult caretaker ever kicked or punched, bitten, tried to choke, drown or smother you?"
- 12 screener items for Sexual Abuse
  Non-contact to penetration
- 26 screener items for Psychological Abuse
  "blamed, humiliated, teased, kept at home"

Follow endorsements (when, perp, #, impact)

Youth Self-Report vs CPS Report

Everson et al., 2008
- 350 participants from 2 of the sites
- Self-Reports (sexual, physical, emotional abuse) at age 12
- CPS Reports of abuse (birth to 12)

Outcome
- YSR, CBCL, TSC-C

Consensus on items that would be defined as abuse
- 11 sexual
- 15 physical
- 18 psychological

Everson et al., 2008 Findings

Overall Agreement: CPS and self-report was 63%, 78%, and 92% for emotional, physical and sexual abuse

High agreement due to absence of report by both sources

- A-CASI interview rates of abuse 4-6 X higher than in CPS records
- Cases of both no CPS report with self-report AND no self-report with CPS report

Self-reports more strongly associated with psychological distress

Current Work: Move Beyond Dimensional

Person-Centered

- Finite Mixture Modeling (Latent Profile, Latent Class, Growth Modeling)

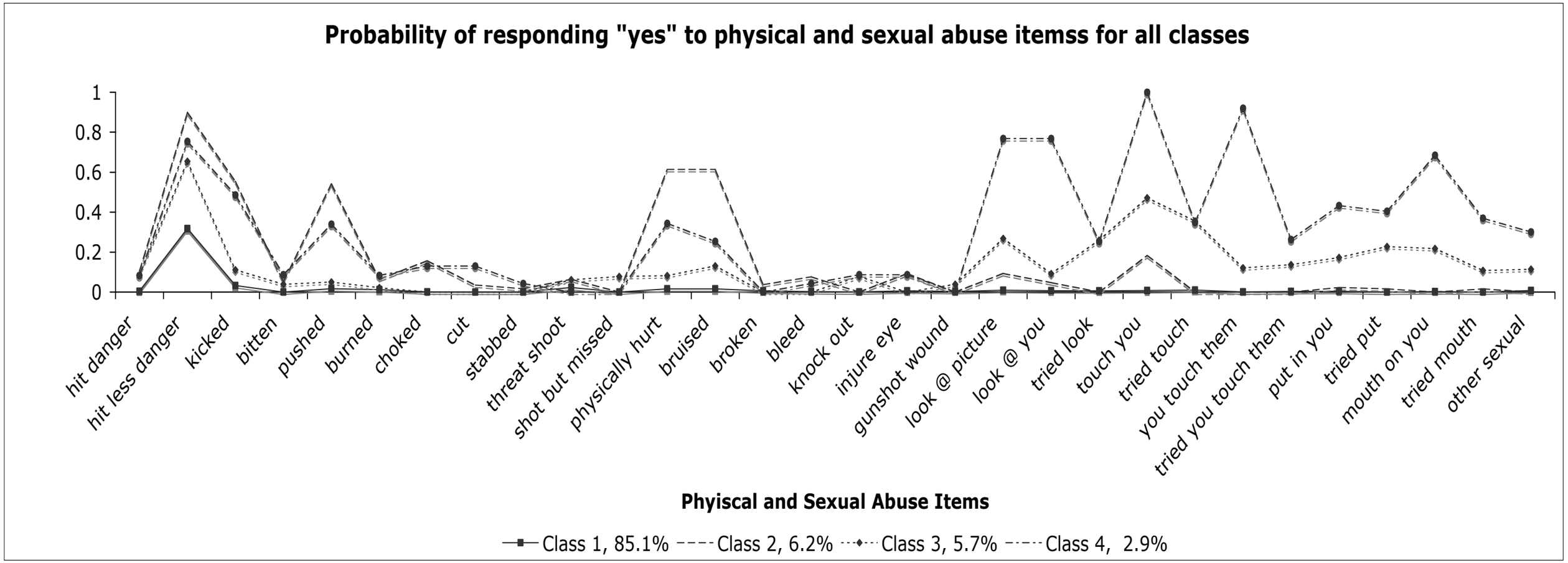
Examples

- Examine Self-Reports
- Maltreatment Reports over Time

Self-Reports: Latent Class Analyses

General latent variable approach
    Latent Class Analysis looks at how individuals respond
Youth Self-Report (n=819) on all 12 sexual abuse and 18 physical abuse items
Fit Indices indicated 4-class solution was best
- No Abuse
- High Physical/Low Sexual
- Moderate Physical & Sexual
- High Physical & Sexual

These classes were moderately related to CPS reports of abuse


Probability of responding "yes" to physical and sexual abuse itemss for all classes
1
0.8
0.6
0.4
0.2
0
hit danger
hit less danger
kicked
bitten
pushed
burned
choked
cut
stabbed
threat shoot
shot but missed
physically hurt
bruised
broken
bleed
knock out
injure eye
gunshot wound
look @ picture
look @ you
tried look
touch you
tried touch
you touch them
tried you touch them
put in you
tried put
mouth on you
tried mouth
other sexual
Phyiscal and Sexual Abuse Items
Class 1, 85.1%
Class 2, 6.2%
Class 3, 5.7%
Class 4, 2.9%

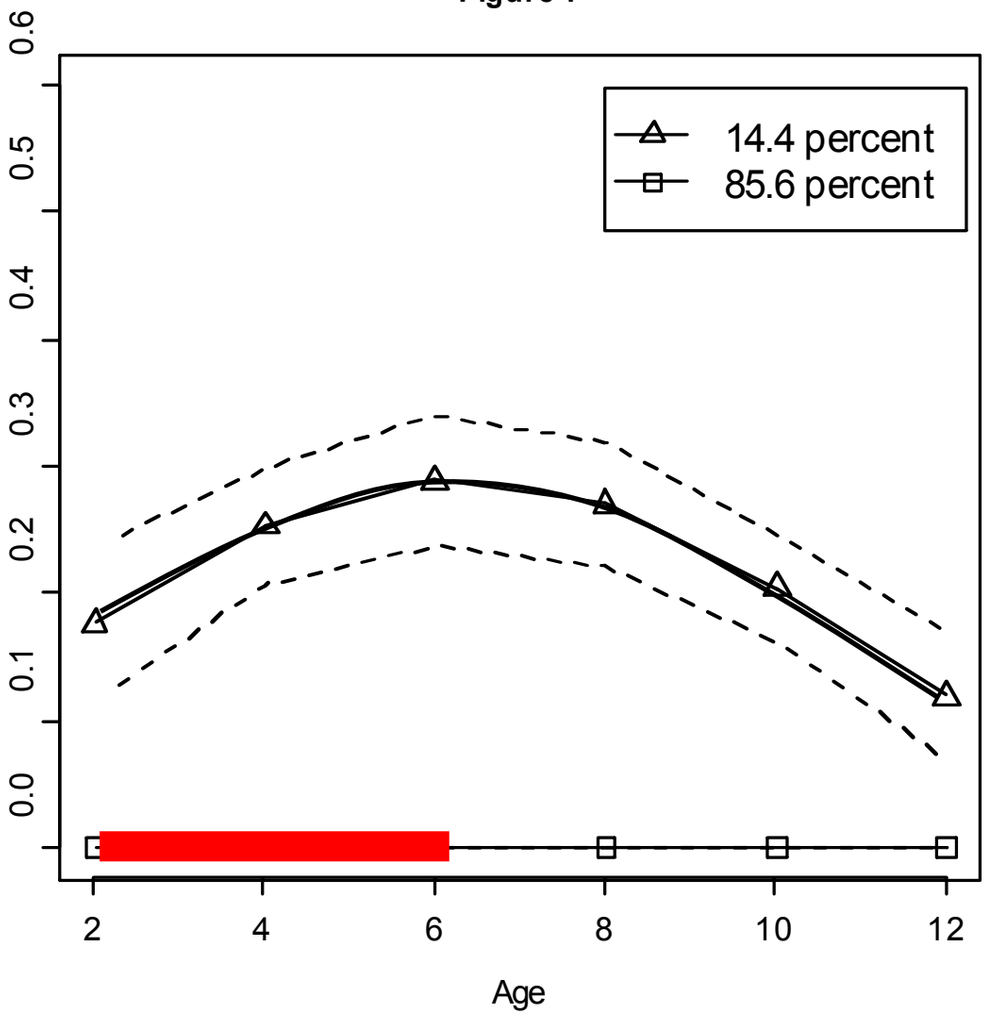
Longitudinal Patterns: CPS Reports

Jones et al. under review

- Examine trajectories of sexual abuse, other forms of maltreatment, & HIV risk behavior in all sites
- Measures
  - Type Maltreatment MMCS in 2-year intervals
  - Witnessed violence by Coddington Life Events (2-yr intervals)
  - Risky behaviors by DISC (drugs & alcohol) and separate sexual activity questionnaire (Age 14)
- Most youth denied either behavior
- “ProcTraj” groups children by longitudinal patterns of exposure

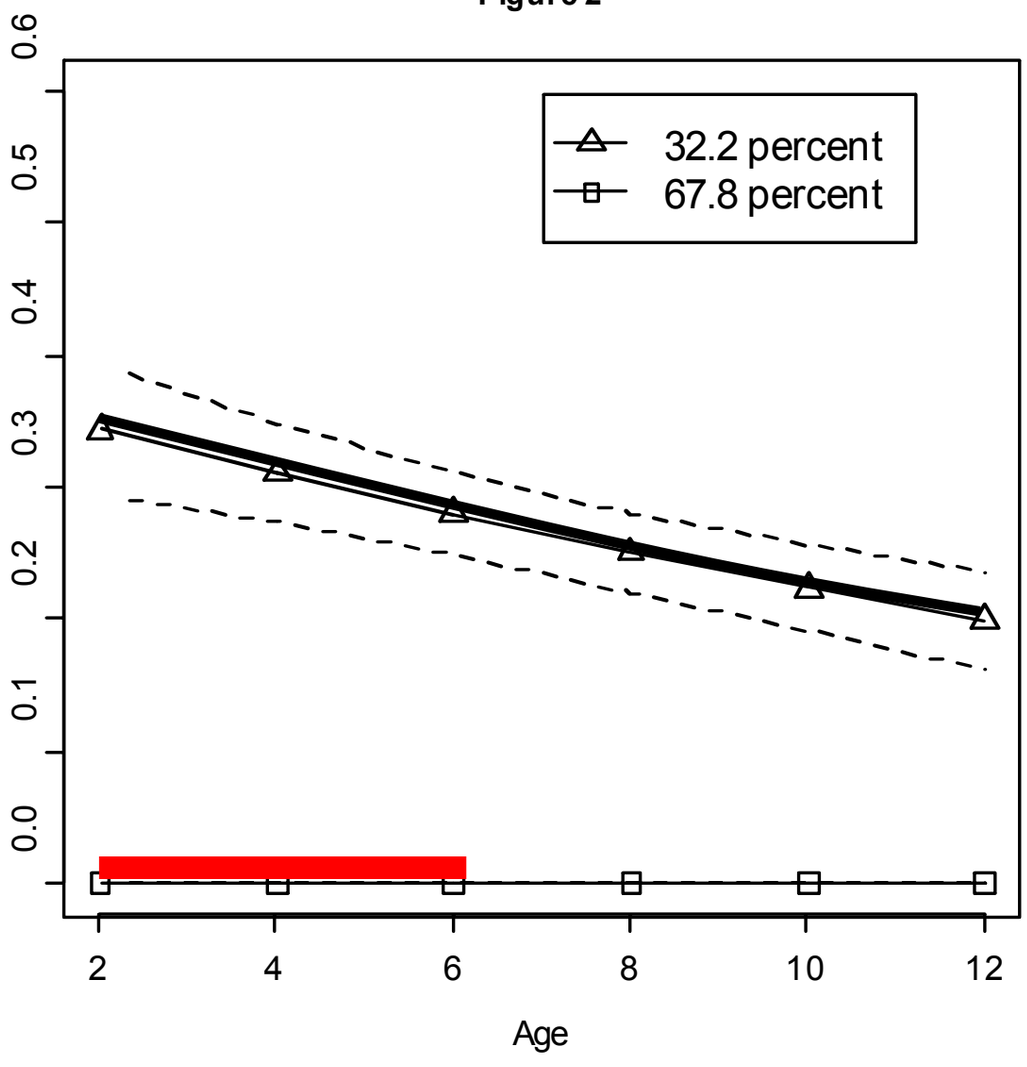
Sexual Abuse & Physical Abuse Trajectories

Figure 1



2 groups for SA: 14% who had a pattern of sexual abuse & most with no CSA

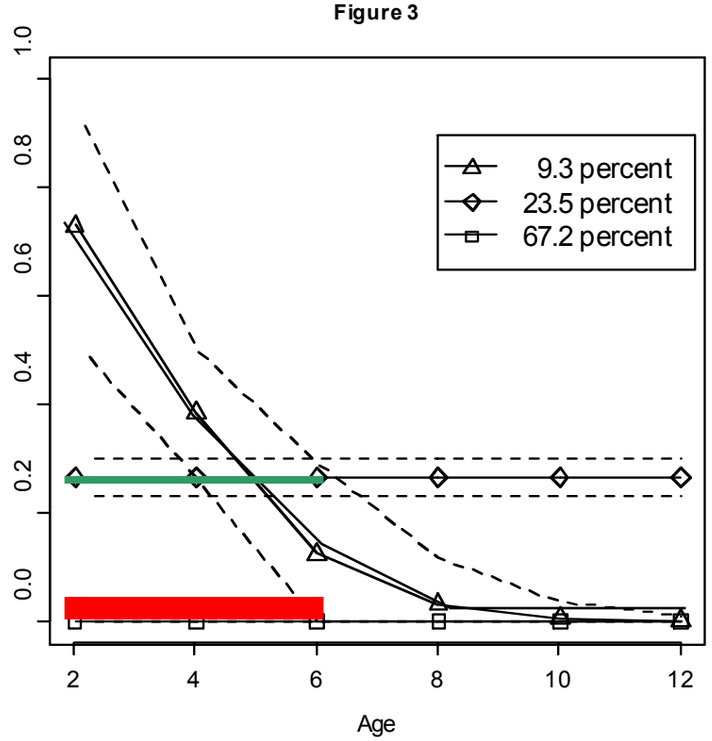
Figure 2



2 groups for PA: 32% with a pattern of physical abuse & most with no PA

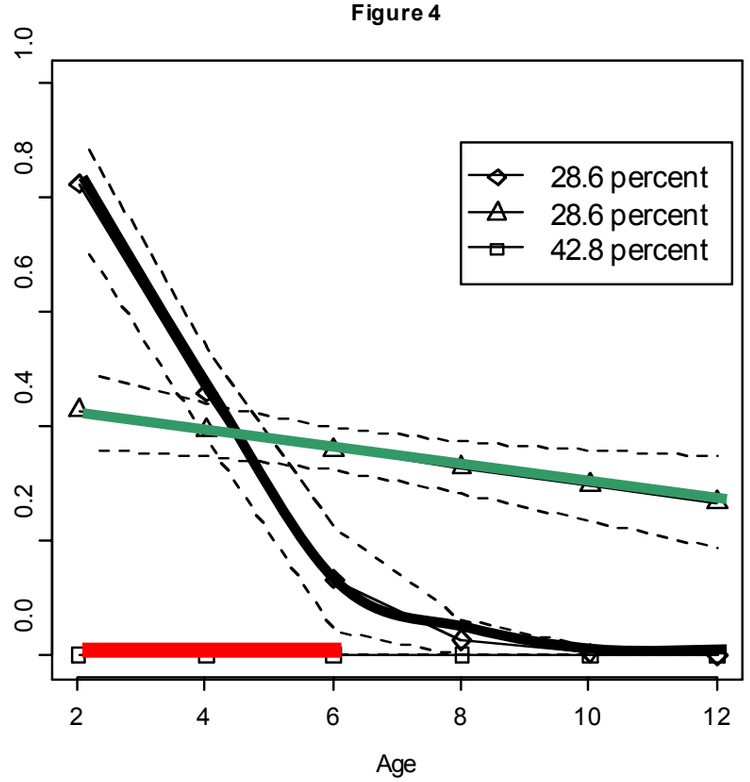
Group Trajectories for Emotional Abuse, Neglect, & Witnessed Violence

Figure 3



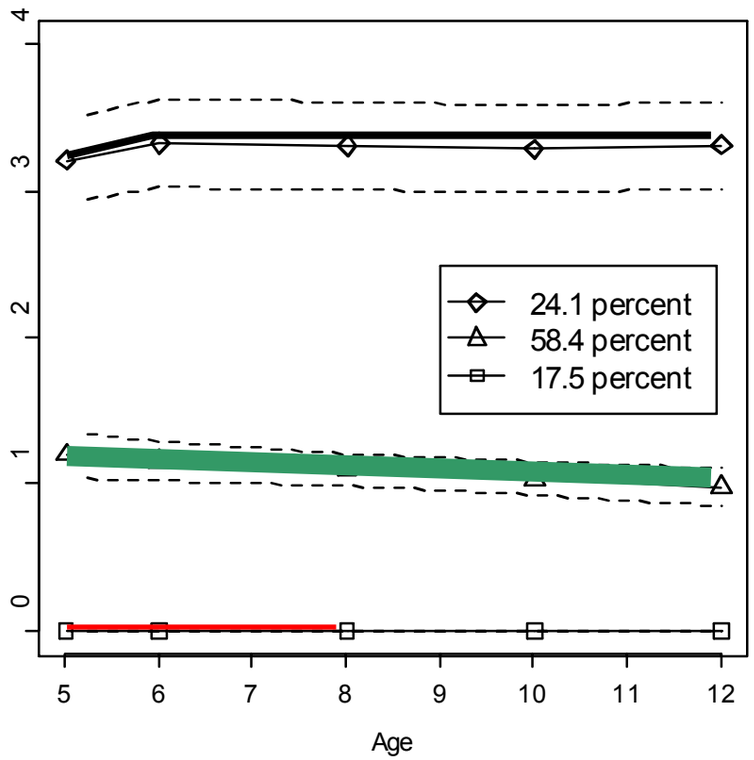
3 groups for emotional abuse

Figure 4



3 group model of neglect

Figure 5



3 groups on witnessed violence

CSA, PA, EA, neglect & witnessed violence explaining alcohol use, sexual activity or both.

Abuse/Violence	Model 1 SA Only Either	Model 1 SA Only Both	Model 2 SA & PA Either	Model 2 SA & PA Both	Model 3 SA & EA Either	Model 3 SA & EA Both	Model 4 SA & Neglect Either	Model 4 SA & Neglect Both	Model 5 SA & WV Either	Model 5 SA & WV Both
Child Gender[ab]	ns	S-								
Sexual Abuse [c]	S+	S+								
Physical Abuse[d]			ns	S+						
Emotional Abuse 1[e]			ns	ns						
Emotional Abuse [2f]			ns	S+						
Neglect 1[g]					ns	ns				
Neglect 2[h]					ns	ns				
Witnessed Violence 1[i]							ns	ns		
Witnessed Violence [2j]							ns	ns		

Jones et al., under review
Findings

Sexual Abuse predicted both sexual activity and drug use individually and combined

Physical and Emotional Abuse predicted combination of both risk behaviors (but not each one separately)

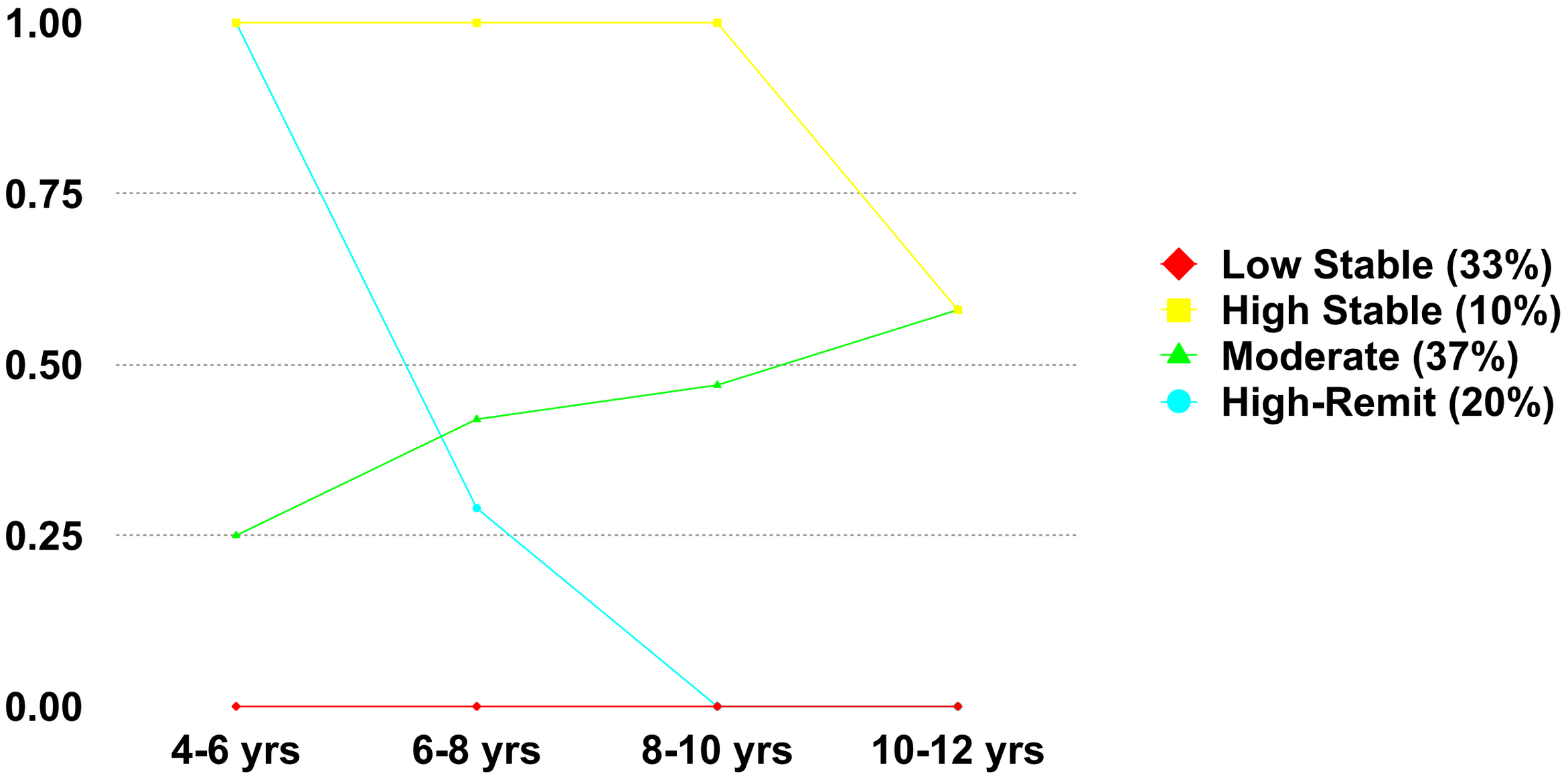
Longitudinal Pattern: CPS Reports for those with Early Reports

Proctor et al. 2009

- San Diego and Seattle sites
- All reported prior to age 4
- First, modeled trajectories for any report from 4 to 14

  Based on Fit Indices a 4-Class solution was supported

4 Classes: Proportion with a Report



Then Looked at Predictors of These Classes

Used Multinomial Logistic Regression to determine if the following predicted Trajectory Group Membership)

- Type of Placement/Caregiver (Bio, Adopt, Kin, Non-Kin)
- Caregiver Characteristics
  - Alcohol Abuse (CAGE)
  - Depression (CES-D)
  - Ethnicity
- Type of Early Maltreatment (Physical, Sexual, Neglect)

Results

Significantly more likely to be in High Stable, Moderate, or High-Remit THAN Low Stable if

- Living with Biological Parent at Age 4
- Living with caregiver who was depressed
- Living with a caregiver who had an alcohol problem
- African-American or Multi/Other ethnicity

Examples of Combining CPS & Self-Reports

Black et al. (in press)

- Either CPS report or self-report for each type
- Outcome: Sexual Activity at 14 and 16

Paper in preparation (more complex)

- LPA of maximum severity by type and self-report endorsements (also other stressors)
- Outcome: Trajectories of “Aggressive” and “Anxious/Depressed” Behavior Problems from the CBCL

Reminder: Order (or Context) is Critical

Words of Wisdom

- Work like you don’t need the money
- Love like you’ve never been hurt
- Dance like nobody is watching

Context is Critical!

Could just as easily be

- Dance like it hurts
- Work when people are watching
- Love like you need the money

Other Risk Factors

Caregiver

Family

School

Community

Consider other Stressors: ACEs (Felitti & Anda)

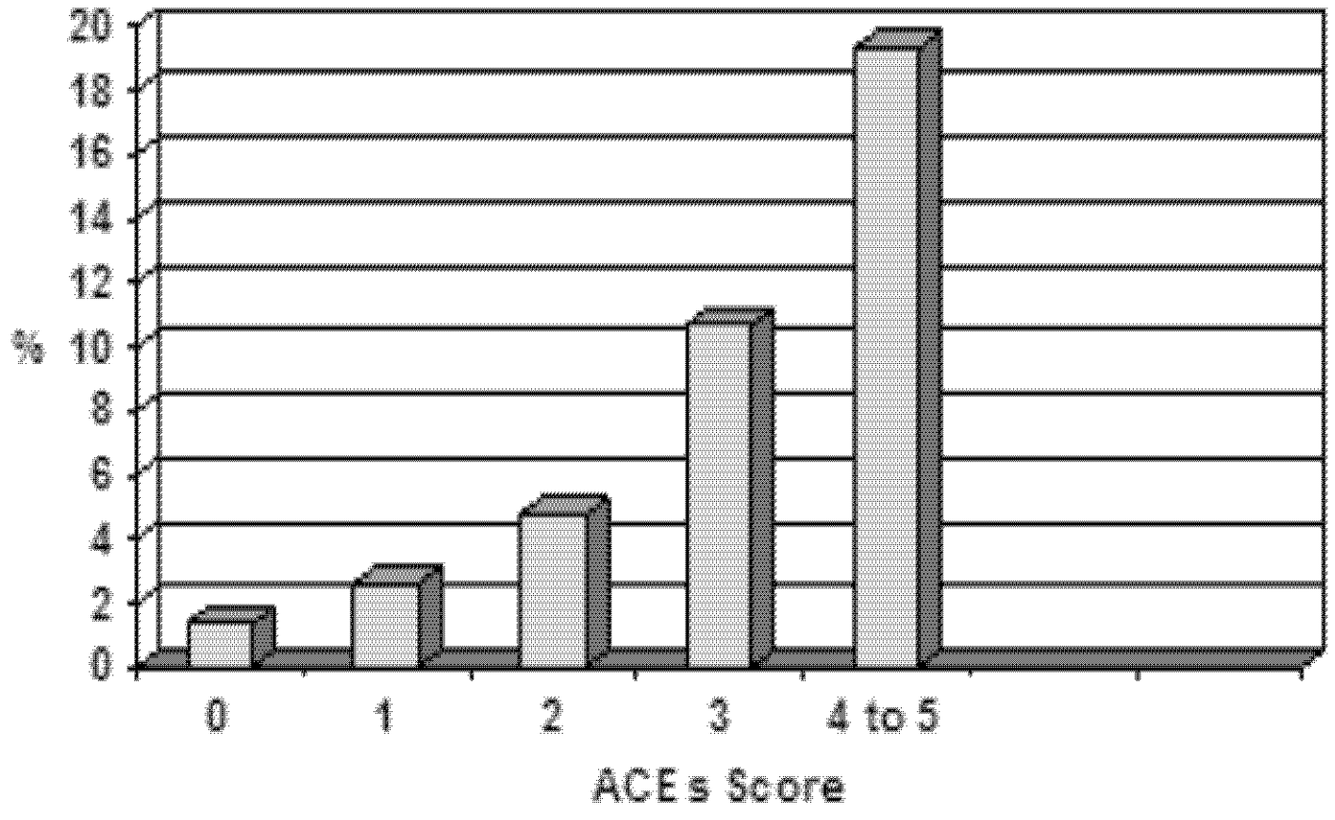
As a child:

- Recurrent physical abuse
- Recurrent emotional abuse
- Sexual abuse

Living with member of household who is:

- Alcohol or drug abuser
- Incarcerated
- Chronically depressed, suicidal, mentally ill
- Victim of domestic violence

ACEs and Attempted Suicide



LONGSCAN & ACEs

ACE studies

- Adults, Medical Records, Retrospective Reports of ACEs

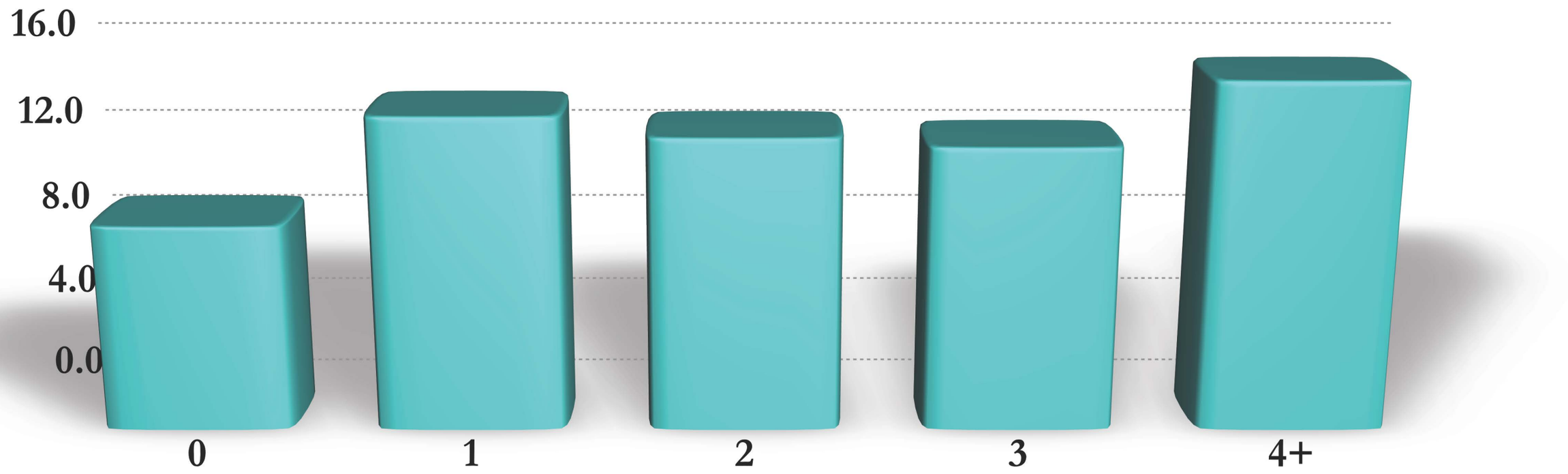
LONGSCAN

- Flaherty et al. 2006

  Count of ACEs and Early Health (6-year-old children)

  Outcome: Caregiver reports of “general health” & “serious illness”

Proportion of 6-Year Olds Requiring Professional Care &/or Poor Health



LONGSCAN ACEs

Flaherty et al. 2009

- Early (birth-6) and later (6-12) count of ACEs
  - Sexual, Physical, Emotional, Neglect
  - Substance Use: CAGE (4), Caregiver Sub Use (8 & 12)
  - Depression: CES-D (4, 6, & 12), BSI (8)
  - Caregiver Treated Violently: CTS (6, 8, & 12)
  - Family Member Incarcerated: LES (6, 8, & 12)
- Outcomes
  - Composite: General Health, Illness Require Dr., & Somatic Complaints (CBCL, YSR)
- Youth 2 to 3 times more likely to have any complaint, be in poor health, require care if more than 5 adversities, especially later (6 to 12)

Specific Risk: Violence Exposure

Litrownik et al. 2003

- 682 children living with biological moms at Ages 4 and 6
- Victim vs. Witness (Physical vs. Psychological)
  - Child: “Things I’ve Seen & Heard” (Age 6)
    - Seen “grownups hitting in the home” and “loud long arguments”
  - Biological Parent (n-682): CTS-PC (minor physical and threaten); LES (child witness physical violence or loud, long argument involving family member)
- Outcome
  - CBCL Aggression Narrow-Band Scale
- Controls
  - Age 4 Aggression
  - Bio Mom Primary caregiver
  - Site (main effects and interactions)

Violence Exposure: Findings

With Controls (Age 4 Aggression & Sites)

- Parent Reports of both Child Physical and Verbal Victimization evidenced more aggression at Age 6
- No main effects for child & parent reports of witnessed violence, but

  Interaction Significant

  Parents report more aggression at Age 6 when
  - Parent reports witnessed physical aggression AND the child reports witnessed verbal aggression

Other Stressors: Reunification & Child Outcomes

Lau et al. 2003

218 children in same placement age 4-6

Structural Model examining

- Reunification (Yes/No)
- Stressful Life Events (LES)
- Mental Health Services
- Outcomes
  - Social Problems (CBCL)
  - Social Isolation
    - Supportive Figures
    - Loneliness & Dissatisfaction Scale

Constructs: Lau et al. 2003

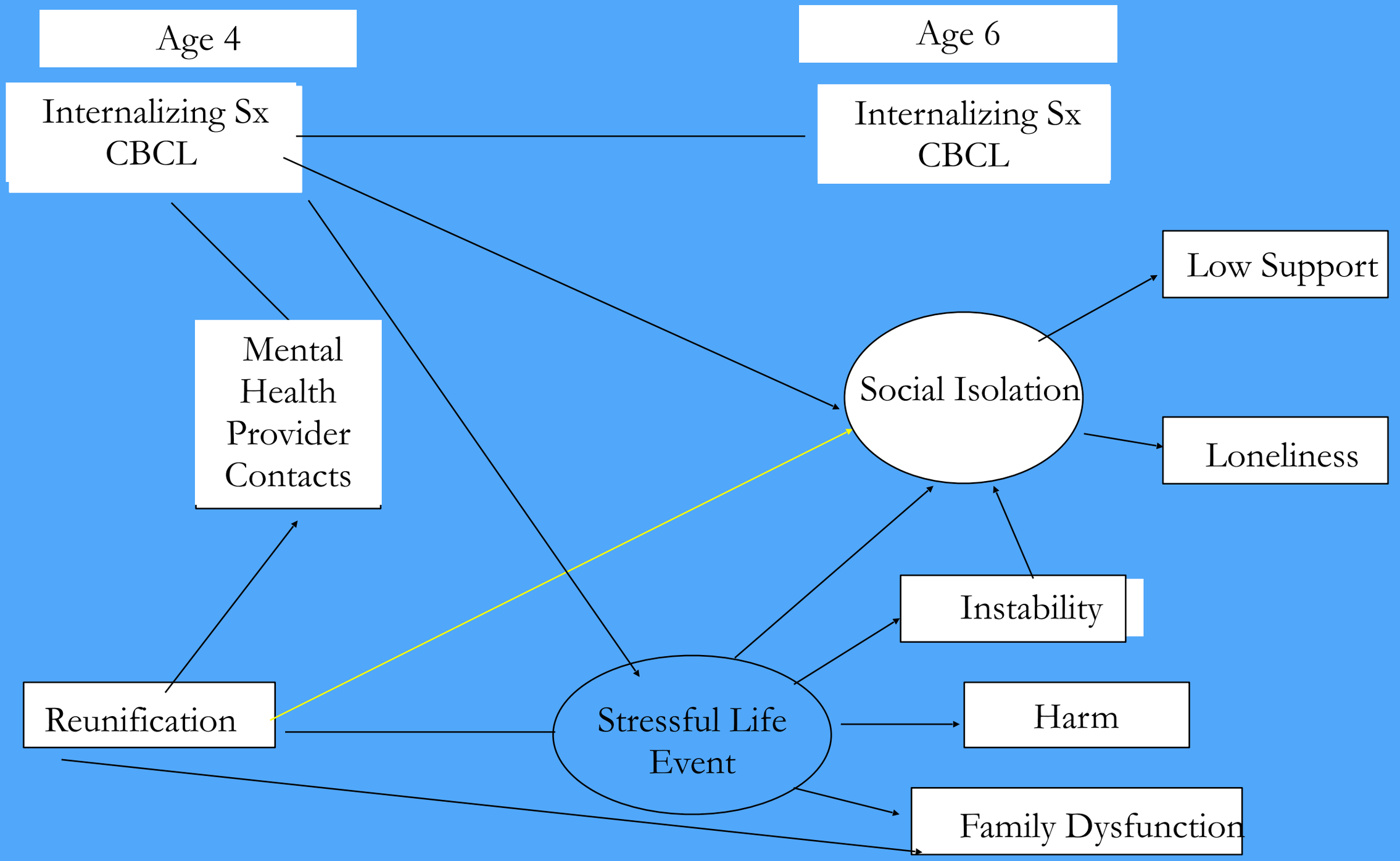
Life Events Scale (Administered every Age)

- Family Dysfunction: separation, divorce, incarcerated, witness loud long arguments
- Instability: new children, move in or out, move to new place, change schools
- Harm to Self/Other Family: accidents, illness, property crime, witnessed threat to family

Age 6 Social Isolation (latent construct)

- Inventory of Supportive Figures (ISF)
  0-3 (M, F, other A)
- Loneliness & Social Dissatisfaction Scale (LSDS)
  16 of 24 items (“Are you lonely at school?”)

Structural Model*

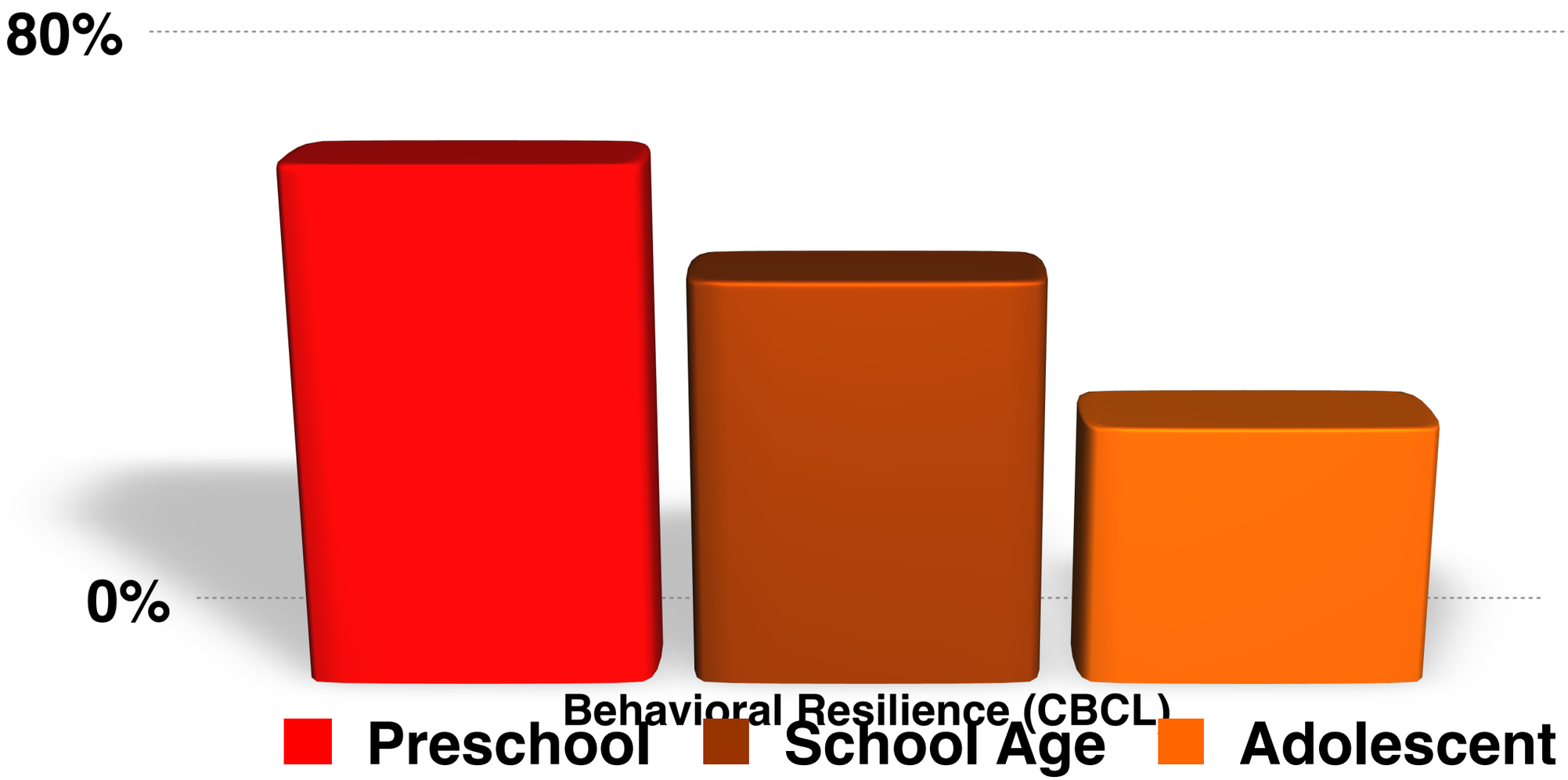


*Model Fit Indices: $\chi^2(19)=20.2$, p=0.38; CFI=0.99; RMSEA=0.03; RMSR=0.04

Resilience

Proctor et al. 2009
Positive adaptation despite significant adversity or trauma
Multiple domains (e.g., behavioral, social, academic)
Dynamic process
  Particularly salient for youth in child welfare
Implications for prevention vs. treatment

NSCAW: Decrease in Behavioral Resilience Across Age



(Burns et al 2004)

Proctor et al., 2009

Modeled Trajectories of Behavioral Resilience

- 279 youth from San Diego with complete data for at least 3 of 5 time points (ages 6, 8, 10, 12, & 14)

Examined

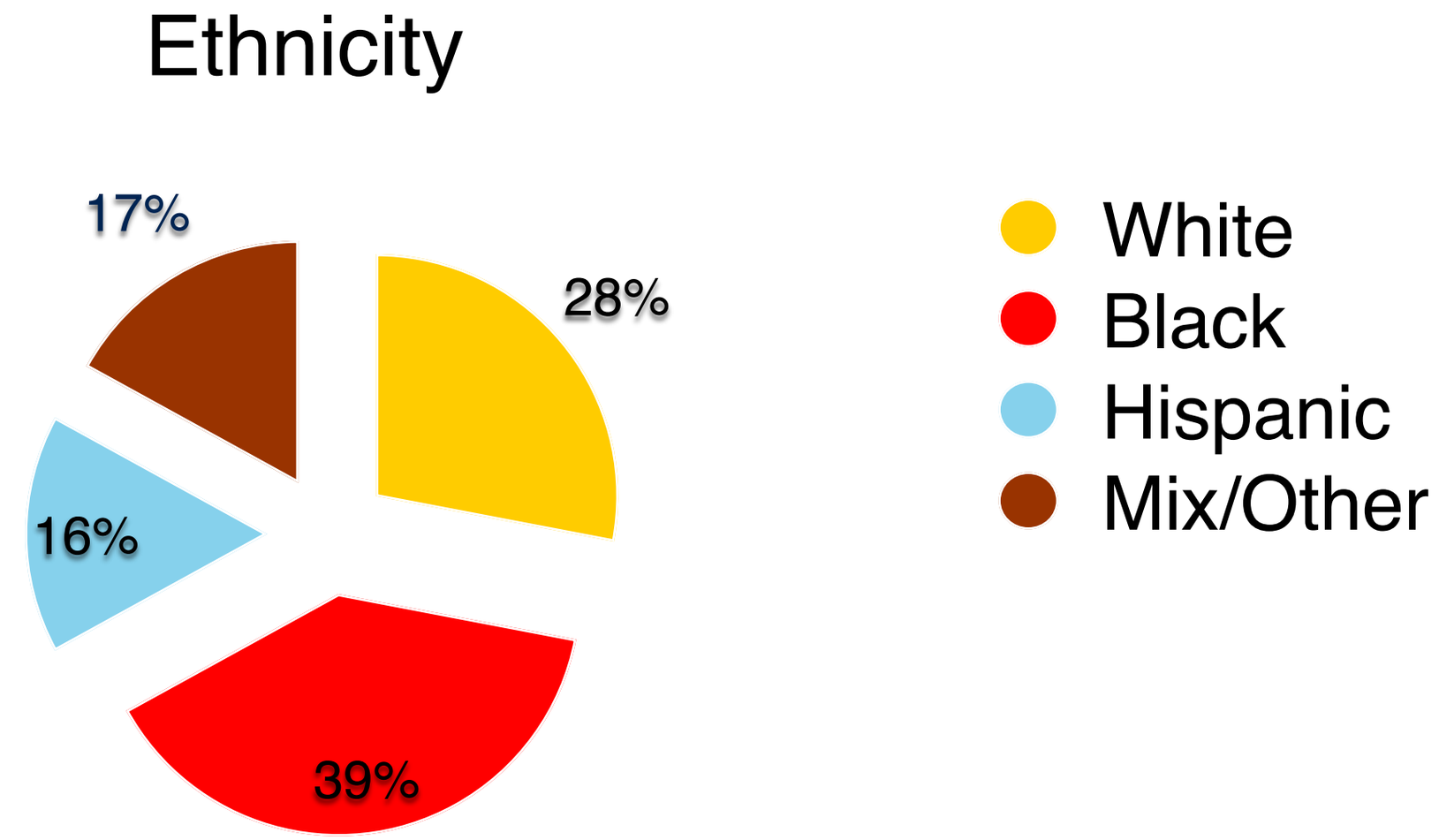
- Protective
  - Child Characteristics
    - Cognitive ability
    - Social competence
  - Caregiver Stability
- Risk
  - Maltreatment

Sample

Gender

Male: 46.6%

Female: 53.4%



Measures

Outcome (Ages 6, 8, 12, 12, & 14)

- CBCL Internalizing & Externalizing (T<60)

Protective

- Cognitive (WPPSI-Block Design; Age 6)
- Social (Vineland Socialization Scale; Age 6)
- Caregiver Stability (same caregiver yes/no; Ages 6 – 14; sum of “yes”)

Maltreatment Frequency & Timing

- # CPS allegations of physical, sexual & neglect
  - Ages 0-6 (early)
  - Ages 6-14 (late)

Class Identification

Used Growth Mixture Modeling

- Classes determined by

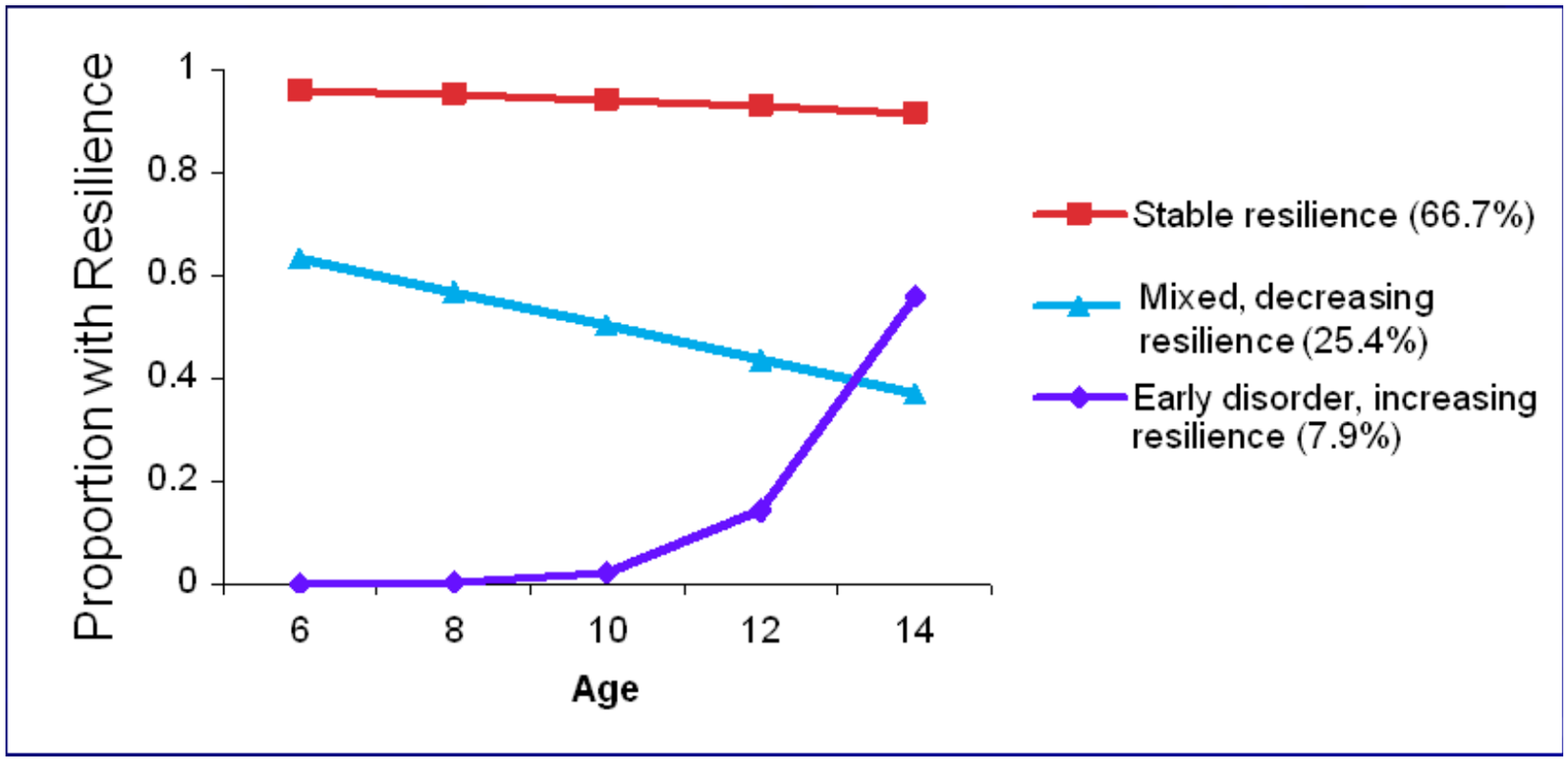
Multiple Fit Indices

- Akaike Info. Criterion (AIC)
- Sample-size adjusted Bayesian Info. Criterion (SSAdj.BIC)
- Lo-Mendell-Rubin likelihood ratio test (LMR)

Adequate class size

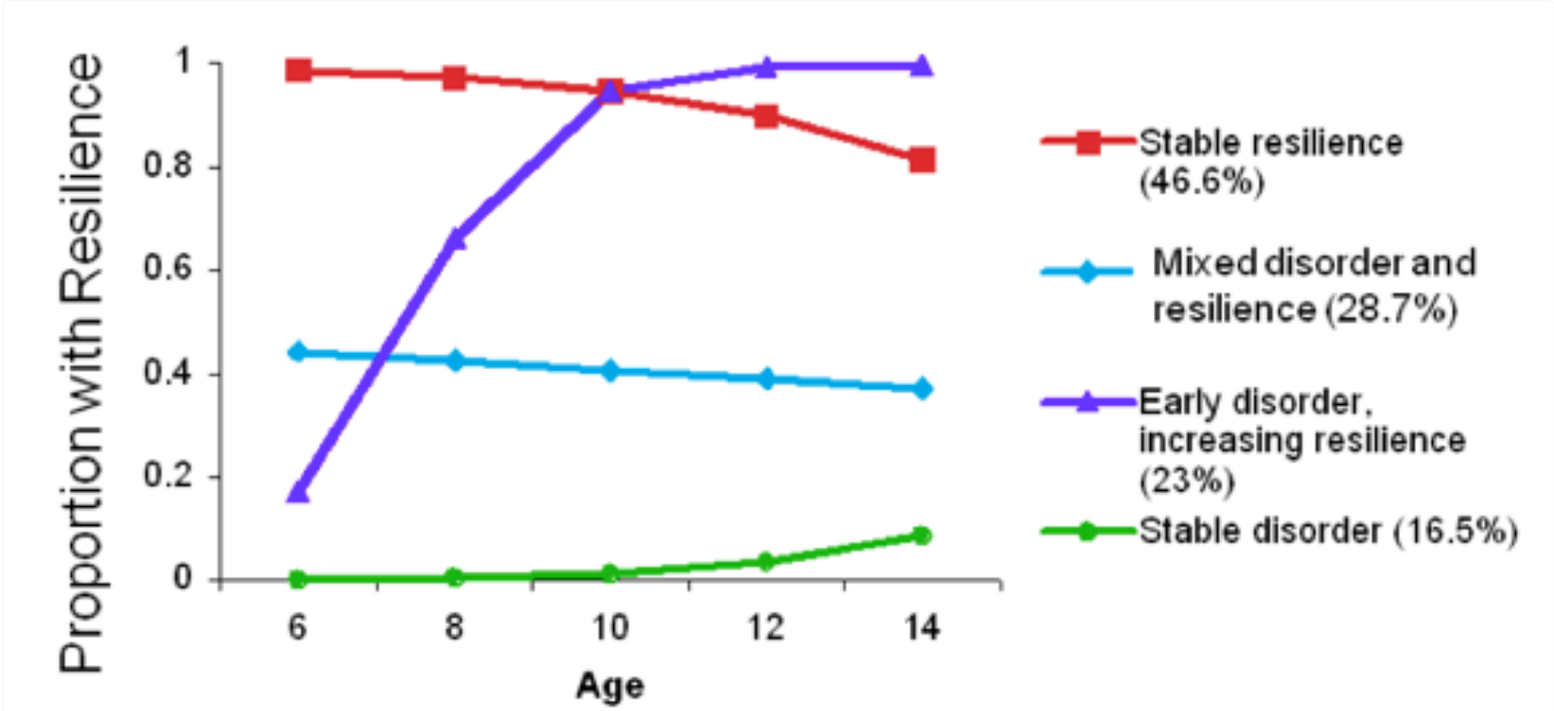
Interpretability

Internalizing: 3 class solution



Note: AIC + 1199.13, SSAdj. BIC = 1202.81; Entropy =.72; LMR = 11.42

Externalizing: 4 class solution



Note: AIC + 1358.67, SSAdj. BIC = 1398.61; Entropy =.71; LMR = 11.11*

Results: Protective and Risk Factors

Used Multinomial Logistic Regression

- Externalizing
  - Stable Resilient had more stable Caregiver and had higher WPPSI scores than the Mixed group
  - Increasing Resilient had more Early Neglect and less Late Physial Abuse that Stable Disorder group
- Internalizing
  - Stable Resilient had higher WPPSI scores, more stable Caregiver, less Early SA and Late PA than the Mixed group
  - Increasing Resilient group had higher WPPSI scores than the Mixed group

Examples: Caregiver & Family Characteristics

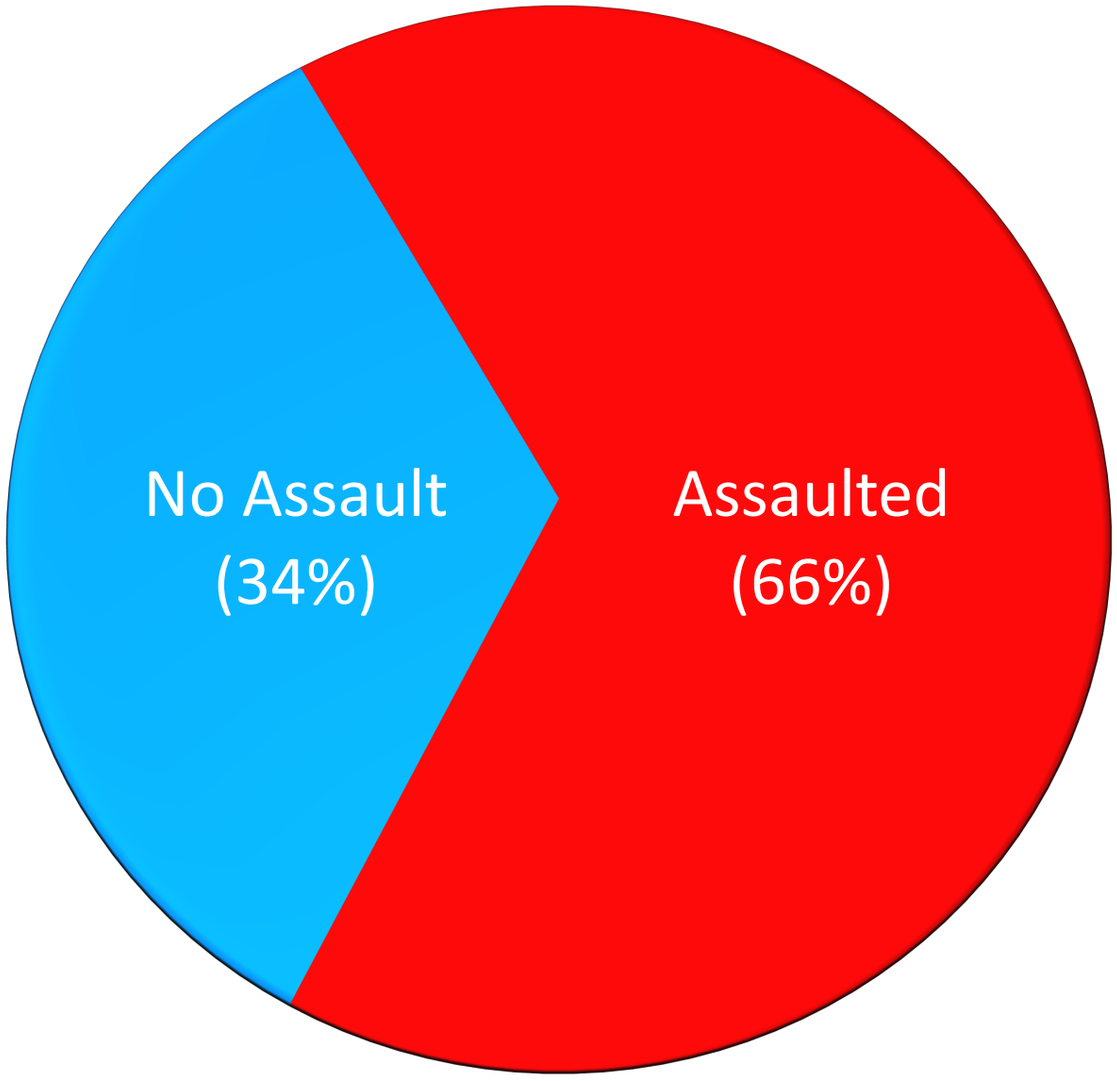
History of Victimization

- 11 Questions (2 physical child and adult; 3 sexual child and teen; 1 sexual assault adult)
  - General probe “Do you feel you were ever abused or mistreated?”
  - Follow-up with Specifics
- Dubowitz et al. 2001
- Thompson 2007

Parenting (Discipline Methods, Adolescent & Adult Parenting Inventory)

- DeRobertis & Litrownik, 2004
- Lau et al. 2006

Caregiver's History of Violence Exposures as a Child and/or Adult (age 4)



Caregiver Report at Age 4 Interview
(N = 923)

Of those assaulted (n = 608):

- 52% experienced some form of physical assault/abuse as a child or teenager.
- 44% experienced some form of sexual assault /abuse before age 13.
- 36% experienced some form of sexual assault/abuse as a teen.
- 75% experienced some form of physical assault as an adult.
- 22% experienced some form of sexual assault as an adult.

64

Caregiver's History of Violence Exposures as a Child and/or Adult

Dubowitz et al. 2001

- Examined Mothers' (n=419) victimization on
  - MH (CES-D) and Parenting (CTS-PC)
  - Children/s behavior, development, and health (CBCL, WPPSI-Block Design & Vocabulary, General Health Status Survey)
  - At Age 6
- Findings
  - Victimization associated with more depression, use of harsh discipline approaches, and more child problem behaviors
  - Timing of victimization
    - Child and Adult>Child=Adult>Neither

Caregiver's History of Violence Exposures as a Child and/or Adult

Thompson, 2007

- 197 Mothers' History of Victimization (Baseline = 6- to 18-months)
- Outcome (Age 4 CBCL)
- Possible Mediators
  - Demographics (gender, age, income, education)
  - Maternal Psychological Functioning (CES-D, CAGE
  - Mother-Child Interactions (CTS-PC, Maltreatment Reports)

Caregiver's History of Violence Exposures as a Child and/or Adult

Findings Thompson, 2007

- Victimization as a child related to child behavior problems
- Maternal young age at birth and depression associated with child behavior problems
- Only Mediator (Partial) was CTS Verbal Aggression

  HOV⇒CTS (Verbal Aggression)⇒CBCL

Discipline Practices & Child Aggression

DeRobertis & Litrownik, 2004

- 70 Kin & Nonkin foster parents
- Predictor (Age 8)

  Discipline Methods Assessment (Caregiver): “How handle noncompliance, lying, stealing, etc?”
- Outcome (Age 8)

  CBCL (Caregiver) at Age 8 interview

  Behavioral Intent Assessment (Child): 7 social situations “ask to play nicely and rejected” “someone asks for all money” “sees friend fighting in the park” “kid comes along and pushes you out of line” “What would you do?”

Discipline Practices & Child Aggression

Raters scored

- Discipline Methods for “harsh parenting”
- Social Problem Solving coded

  Appropriate (Verbal Assertion, Compromise, Physical Assertion, Help Seeking)

  Non-prosocial (physical and verbal aggression)

Findings

- Kinship foster parents reported using more harsh disciplinary practices
- Parent disciplinary practices ⇒ use of aggressive problem solving strategies of children

Quality of Parenting

Lau et al., 2006

- Examined contexual factors influencing Physical Discipline⇒Child Behavior Problems
- 442 African-American and Caucasian Children living with Bio Mother (age 4, 6, & 8)
- Predictor
  - Physical Discipline (CTS-PC at Age 6)
- Outcome
  - CBCL Externalizing (Age 4 and Age 8)
- Potential Moderators
  - Race
  - Parental Empathy (AAPI Age 4) 4 scales (empathy, expectations, roles, non-corporal)

Quality of Parenting

Results Lau et al., 2006

- Overall, physical discipline predicted more externalizing problems for those who already had a problem
- Parental warmth
  - Protected children from the effects of physical discipline if they were Caucasian
  - Functioned as an additional risk for African-American children
    - Parental warmth increased impact of physical discipline on child behavior problems

A Final Example: The Richness of the LONGSCAN Data

Thompson et al. 2005 (Suicidal Ideation)

Examined relationship of a number of factors to SI

9.9% of 1,051 8-year-old children reported SI on the TSC-C (i.e., sometimes “Wanting to kill yourself”)

Possible associated factors

- Child, Caregiver, Family, Community levels

Domains, Constructs & Measures

Child
- Externalizing (CBCL)
- Prosocial Problem Solving (BIA)
- Substance Use (tobacco, alcohol, illegal)
- Academic Performance (TRF)
- Receive MH services (Service Utilization)

Caregiver
- Psychological Distress (BSI)
- Substance Use (alcohol daily or illegal drugs)
- Need for MH services (Service Utilization)

Family
- Intimate Partner Violence (CTS)
- Family Cohesion and Conflict (Self-Report Family Inventory)
- Negative Life Events (LES)
- Caregiver Support (MFF)

Extra-Familial Factors

School
- Caregiver Involvement (Rated by Teacher)
- Suspensions

Peers
- Support (MFF)

Community
- Witnessed Violence/Feelings of Safety (Things I've Seen and Heard)
  - Home, School, Neighborhood

And, Maltreatment
- Maximum Severity by Type, Multiple Types, Chronicity (extent and continuity)

Summary Findings

Many significant bivariate relationships
Logistic Regression (SI=Yes/No) with significant factors
  Demographics
  Family or Contextual
  Child Functioning
Found
  Demographic (Race/Ethnicity)
  Family/Contextual (witnessed violence and maltreatment)
  Child Psychological Distress, substance use, and Poor Social Problem Solving

"If I knew the meaning of life, would I be sitting in a cave in my underpants?"

The Data (through Age 12) Are All Yours

- May you Enjoy and Experience a productive outcome!