

Impact of a Nurse Home Visiting Intervention on the Development of Physically Aggressive Behavior in Children

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Background

- Parent training major focus of intervention efforts
- Reduction of maladaptive parenting behaviors and an increase in the use of positive parenting strategies (Gross, Lewis, et al, 2003; Taylor & Biglan, 1998; Spoth, Redmond & Shin, 1998; Brestan & Eyberg, 1998; Reid, W-S, Baybar, 2004).

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Background

- Language promotion activities + parenting skills training = reduced aggression
- Direct effects on aggression
- Indirect effects that are mediated by better language development.

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Background

- Home visiting programs for first-time parents have garnered attention as effective parent training strategies (McNaughton, 2004; Kearney, York & Deatrck, 2000; Austin & Lemon, 2005; Fetrick et al, 2003; Olds, Sadler & Kitzman, 2007)
- Typically targeted to those parents at highest risk for poor outcomes.

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Gender Differences

- Few studies examined effectiveness by gender
- Webster-Stratton (1996), found that externalizing behaviors differed by gender at baseline (males higher than females)
- Male & female responses to the intervention were very similar.

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Gender Differences

Webster-Stratton summarizes by stating “it is time to remedy this gap in the research to determine whether there are different behavioral symptoms, developmental pathways, etiological factors, and treatment outcomes for girls and boys” (1996)

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Purpose of Study

- To examine the impact of the NFP on language ability & the development of physically aggressive behavior in children from age 2 through age 12 years.

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Study Questions

- Was the nurse home visiting program effective in reducing physically aggressive behaviors through age 12 years?
- Did the intervention effects on the development of physical aggression over time differ by gender?
- Were the effects of the intervention on physical aggression mediated by children's language ability?

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Sample

- < 29 weeks pregnant
- No previous live births
- No specific chronic illnesses linked to fetal growth retardation or preterm delivery
- ≥ 2 of the following sociodemographic risk conditions: unmarried, <12 years of education, unemployed

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Nurse Home Visiting Intervention

- Post-partum protocols focused on improving physical and emotional care
- Specific curricula promoting parent-child interaction incorporated

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Dependent Variables

Age 2 Cognitive Development

- Age 2: Bayley Mental Development Index (MDI)_(Bayley, 1993)

Age 6 Language Ability

- Age 6: Peabody Picture Vocabulary Test – Revised (PPVT-R)_(Dunn & Dunn, 1981)

Physical Aggression

- Child Behavior Checklist (CBCL)_(Achenbach, 1991, 1992)

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Co-Variates

- Household poverty: averaged z-scores of household discretionary income, head of household employed, % household density
- Negative Parenting Attitudes: Adult-Adolescent Parenting Inventory_(Bavolek, 1984), a measure of parenting attitudes that indicate a high-risk for child maltreatment.

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Sub-groups

- Gender
- Maternal Psychological Resources: Mean z-scores of intelligence, mental health, mastery, & self-efficacy

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Statistical Analyses

- Simultaneous equation modeling
- Research questions 1 & 2 tested in 4 primary models
 - intervention main effects
 - intervention X child gender effects
 - intervention X maternal psychological resources effects
 - intervention x gender x maternal psychological resources effects.

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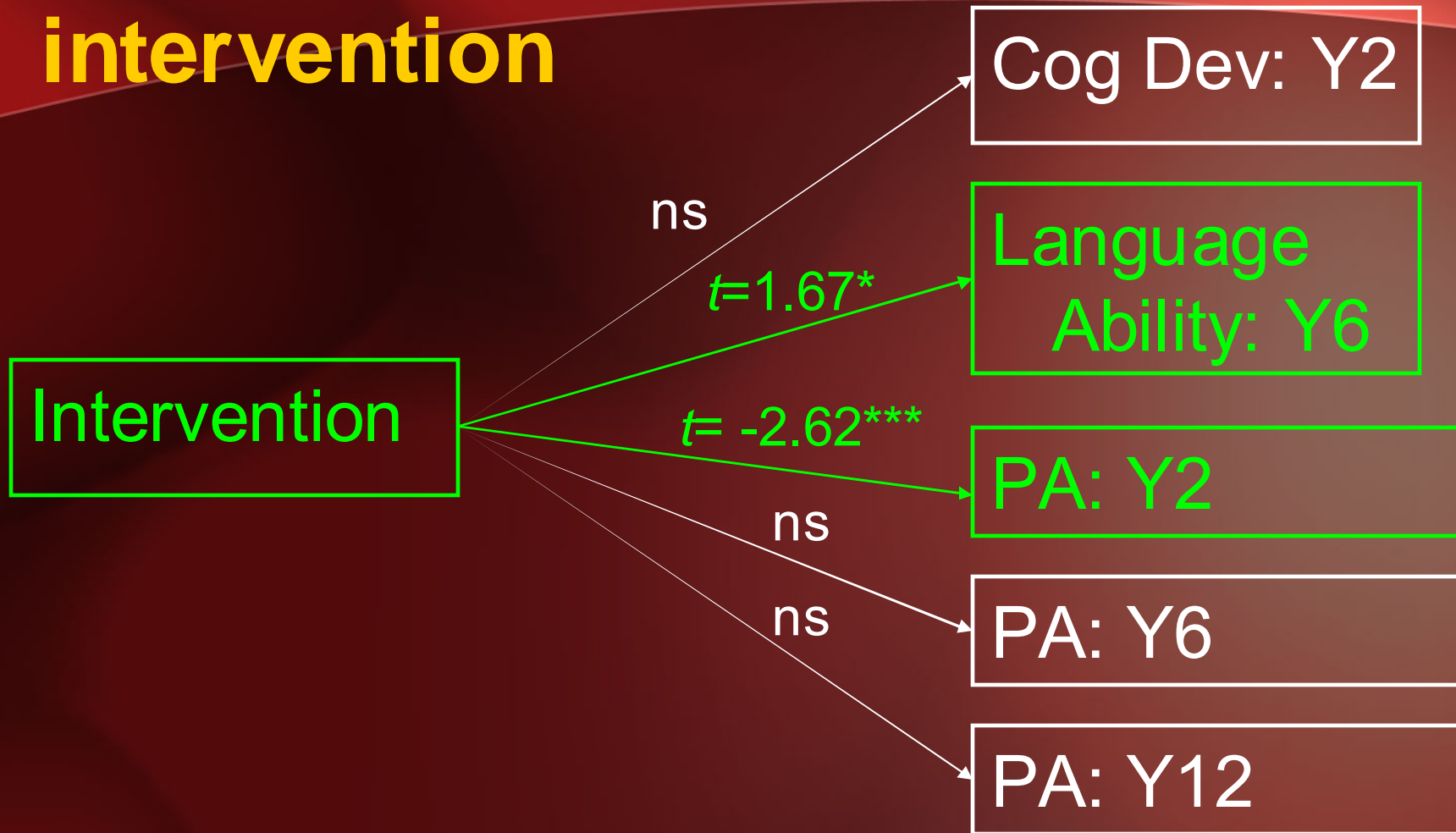
Statistical Analyses

- Mediation analyses (Research question 3) conducted independently for each outcome
- 2 criteria for mediation:
 - Joint test
 - Asymmetric confidence limits test

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Results: Model 1- Main effects of intervention

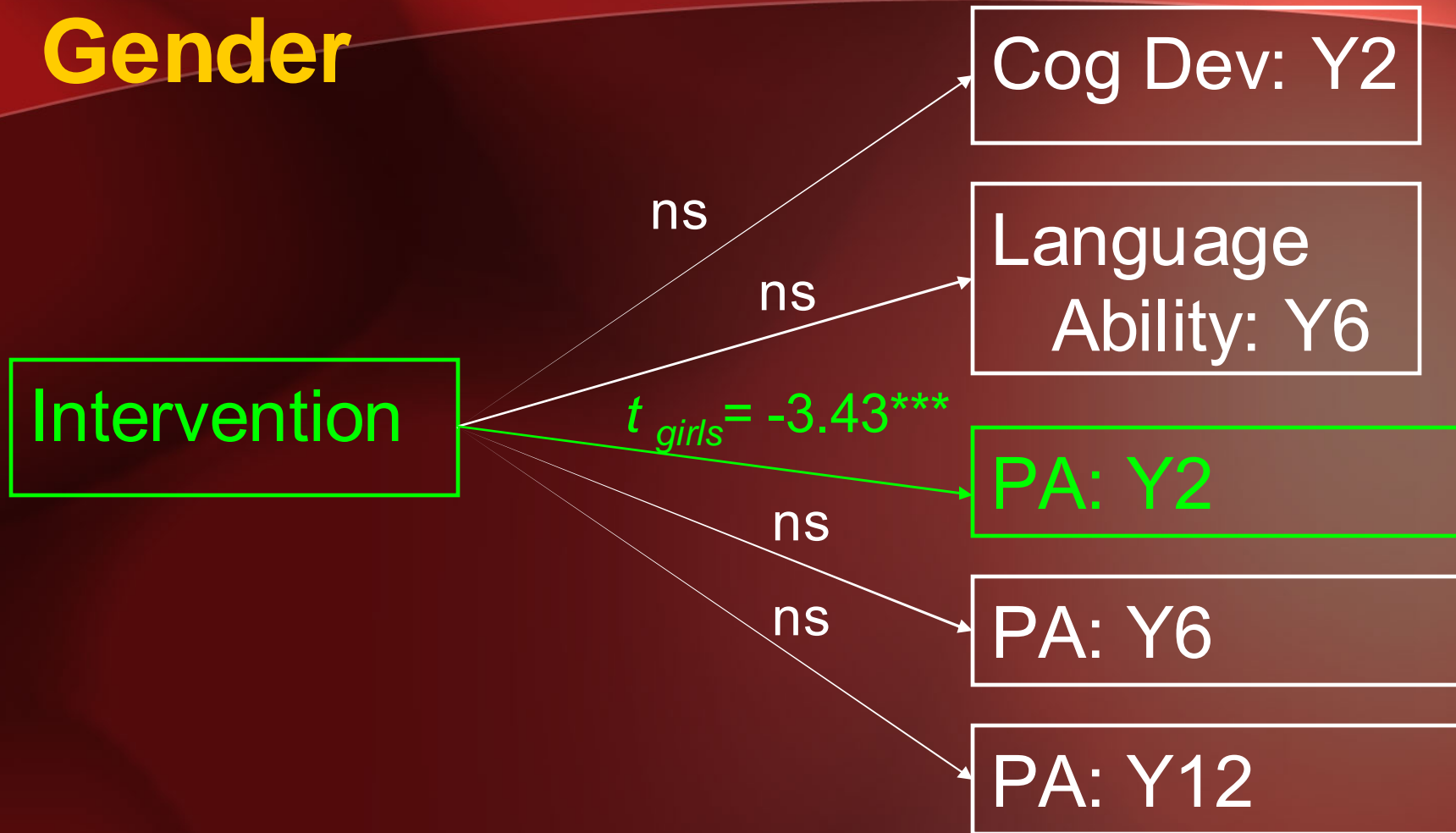


* $p < .10$ ** $p < .05$ *** $p < .01$

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Results: Model 2- Intervention x Gender

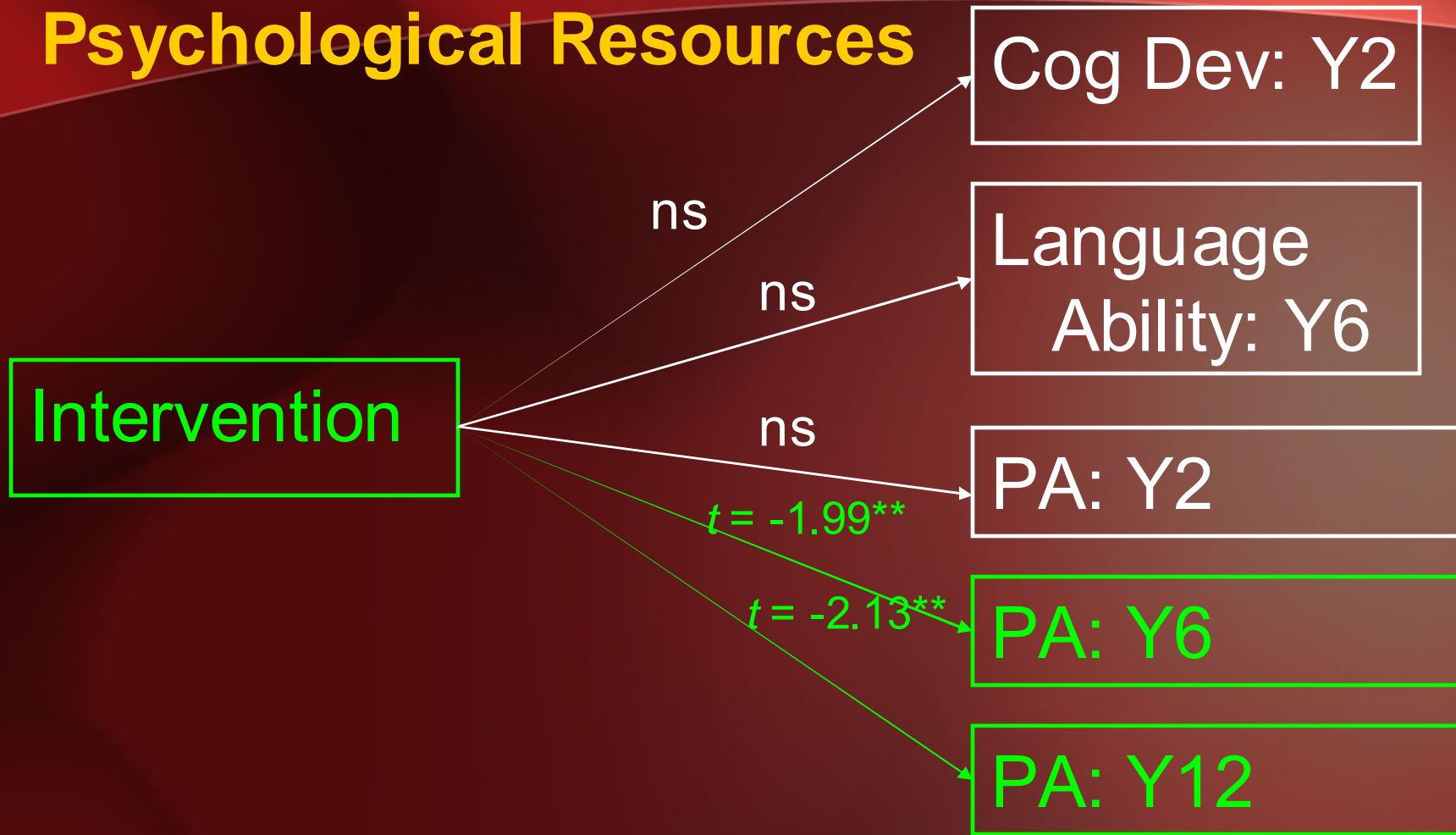


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Results: Model 3- Intervention x Psychological Resources

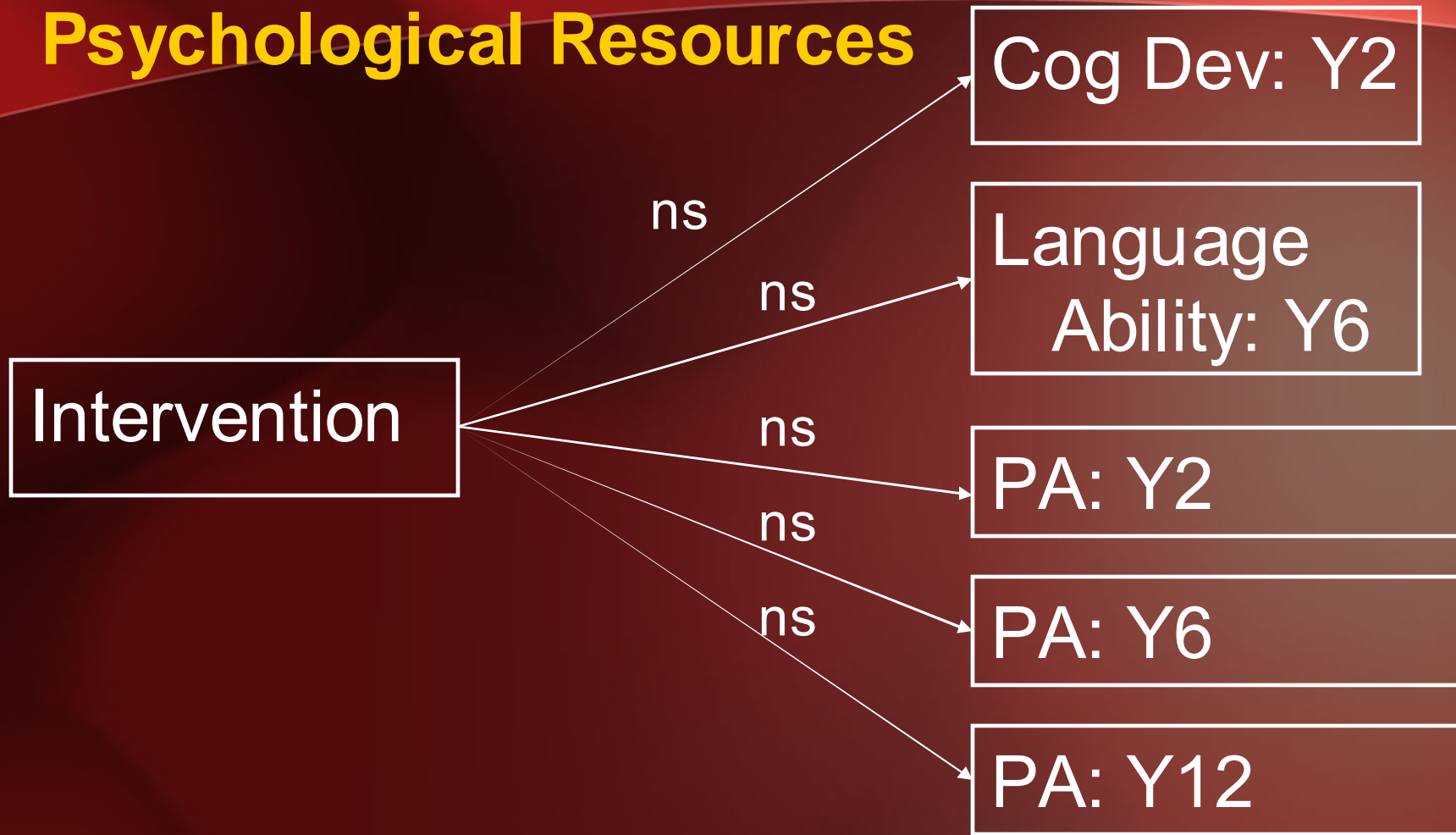


* $p < .10$ ** $p < .05$ *** $p < .01$

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Results: Model 4- Intervention x Gender x Psychological Resources

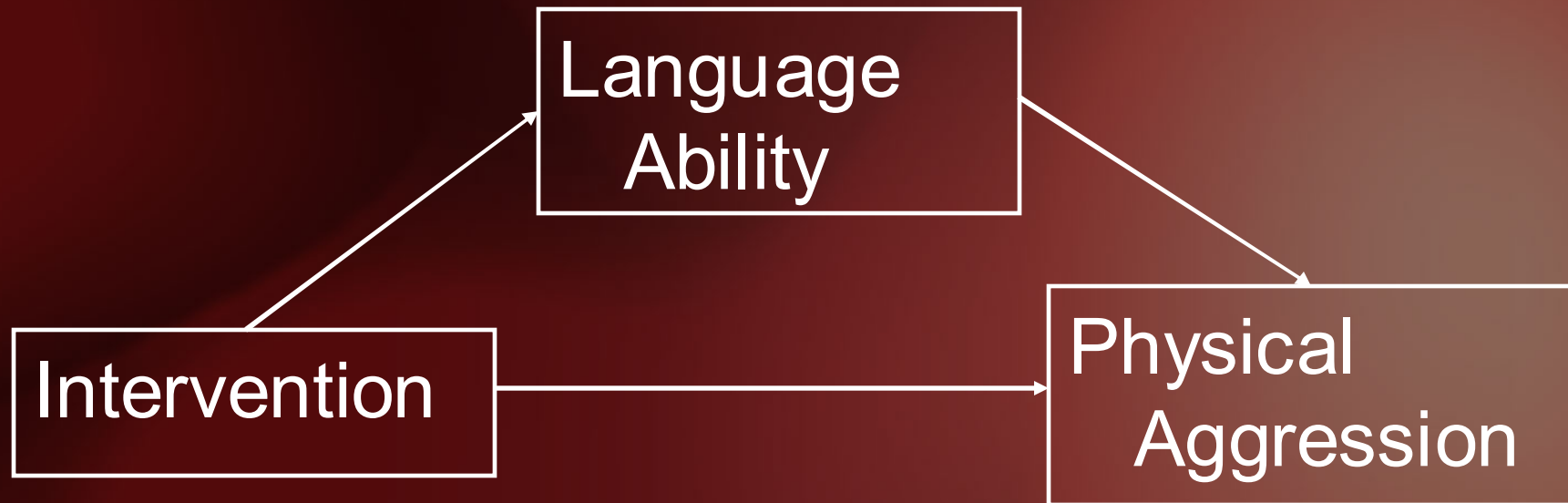


* $p < .10$ ** $p < .05$ *** $p < .01$

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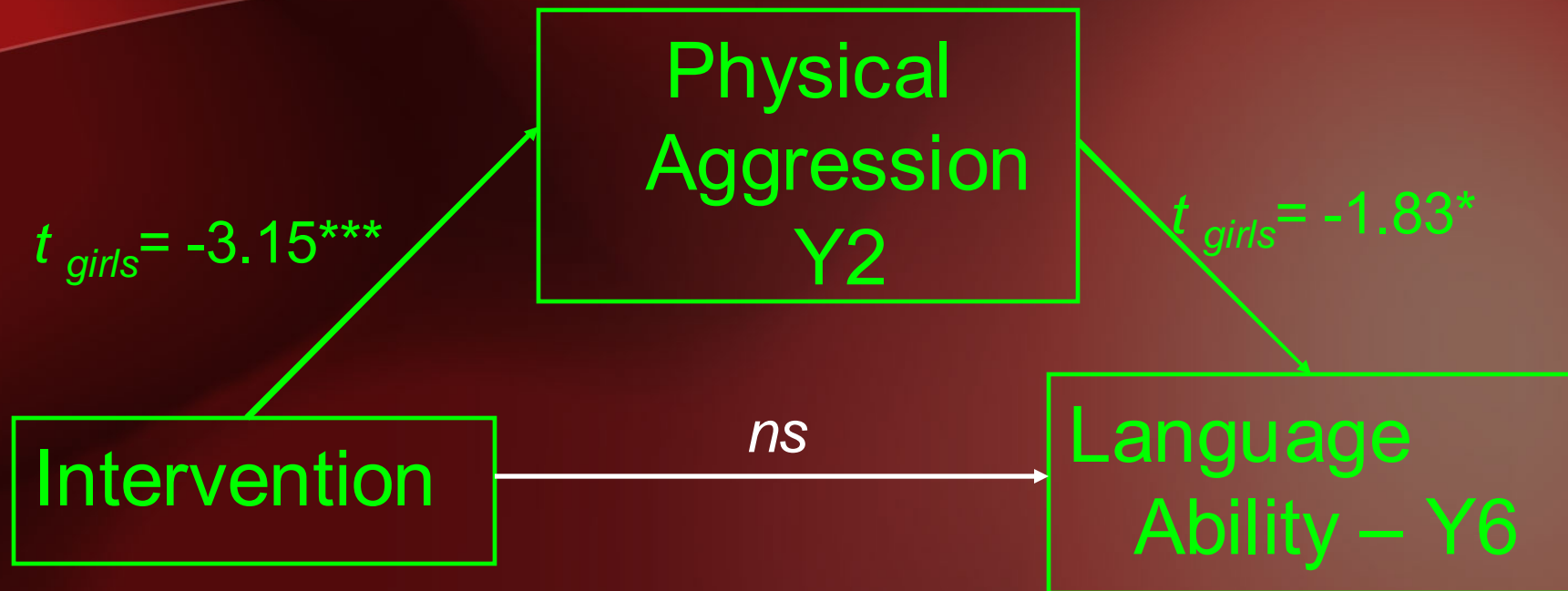
Results: Mediation effects



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Results: Alternative hypothesis



* $p < .10$ ** $p < .05$ *** $p < .01$

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Discussion

- Previous analyses revealed no intervention effects on general externalizing behavior
- Differential impact of the NFP by gender & mother's psychological resources

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Discussion

- NFP intervention successfully interrupted early development of physically aggressive behavior in girls.
- By age 6 and through age 12, the intervention effects were attenuated.
- Lack of effect among boys unexpected.

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Discussion

- Few research studies examine program effectiveness by gender.
- Analyses limited to only examining intervention x time effects, would have overlooked that the impact of the intervention was concentrated among the girls.

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Discussion

- NFP had significant & sustained impact on physically aggressive behaviors from age 6 through 12 years among children of mothers with high psychological resources.
- Theorize that these high psychological resource mothers were better able to handle the demands involved in providing sustained, competent care of their children.

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Limitations

- No direct assessment of language at age 2.
- Physical aggression items changed from age 2 to ages 6 and 12 years
- Maternal reports were used to obtain assessment of children's behavior

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Future Research

- Important to examine various pathways for the development of PA in children
- Pathways may differ by gender
- More complex models including previously identified predictors should be analyzed
- Gender needs to be included in future analytical models examining intervention effects on PA

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