



Promoting Midlife Well-Being through the Child-Parent Center PK-3rd Program

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HCRC Lunchtime Talk

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Brief Presentations

Introduction:	Arthur Reynolds
Economic Well-Being:	Suh-Ruu Ou
Physical Health:	Nishank Varshney
Mental Health:	Arthur Reynolds

CPC-P3 Continuity System

Collaborative Leadership
Aligned Curriculum
Continuity and Stability

Early
Ed

P

K

1-3

Achievement

Well-Being

Effective Learning Experiences
Professional Development
Parent Involvement & Engagement

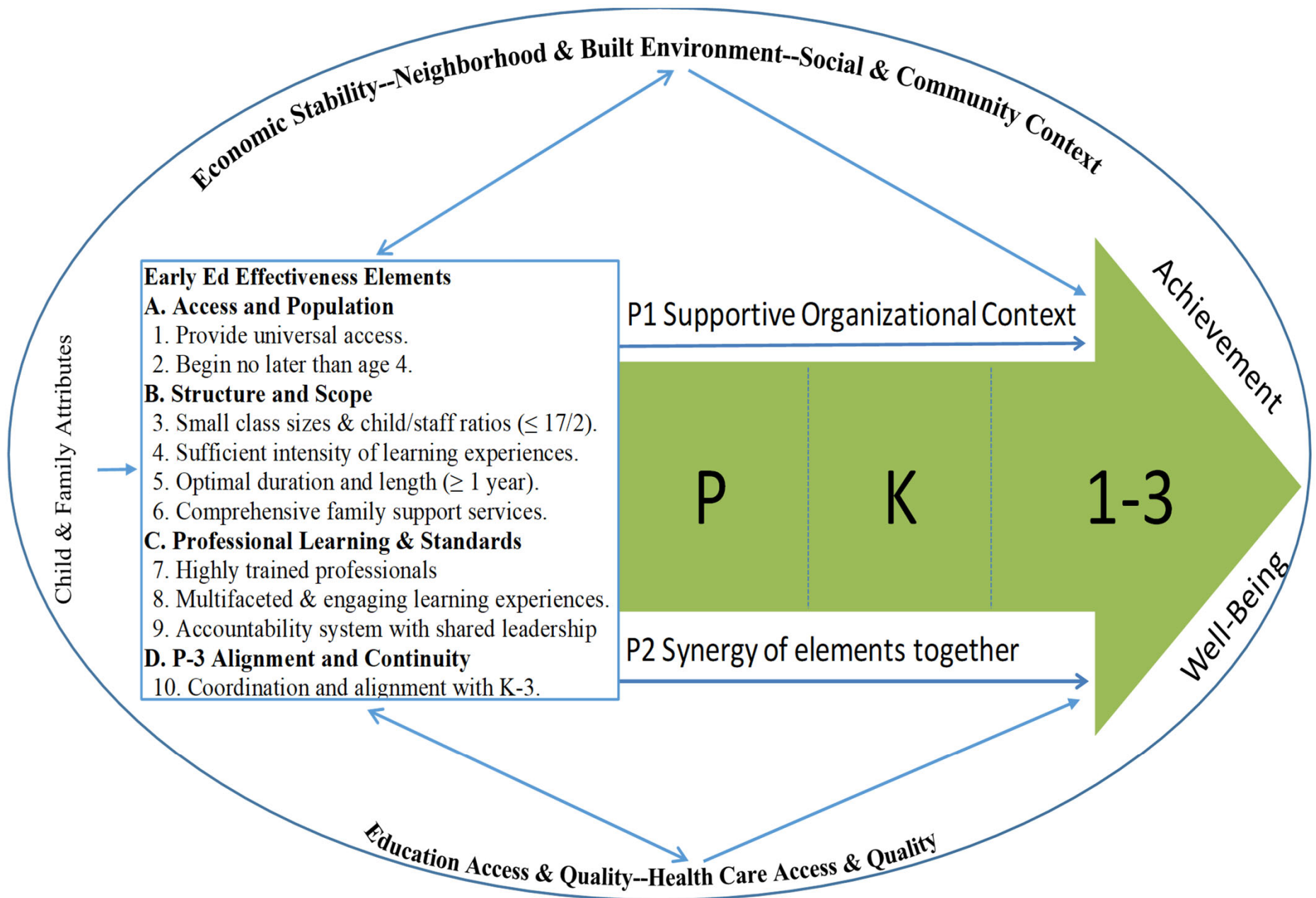


Figure. Ten Essential Elements of Early Childhood Programs and Socio-Structural Influences on Achievement & Well-Being.

Child-Parent Center Structure

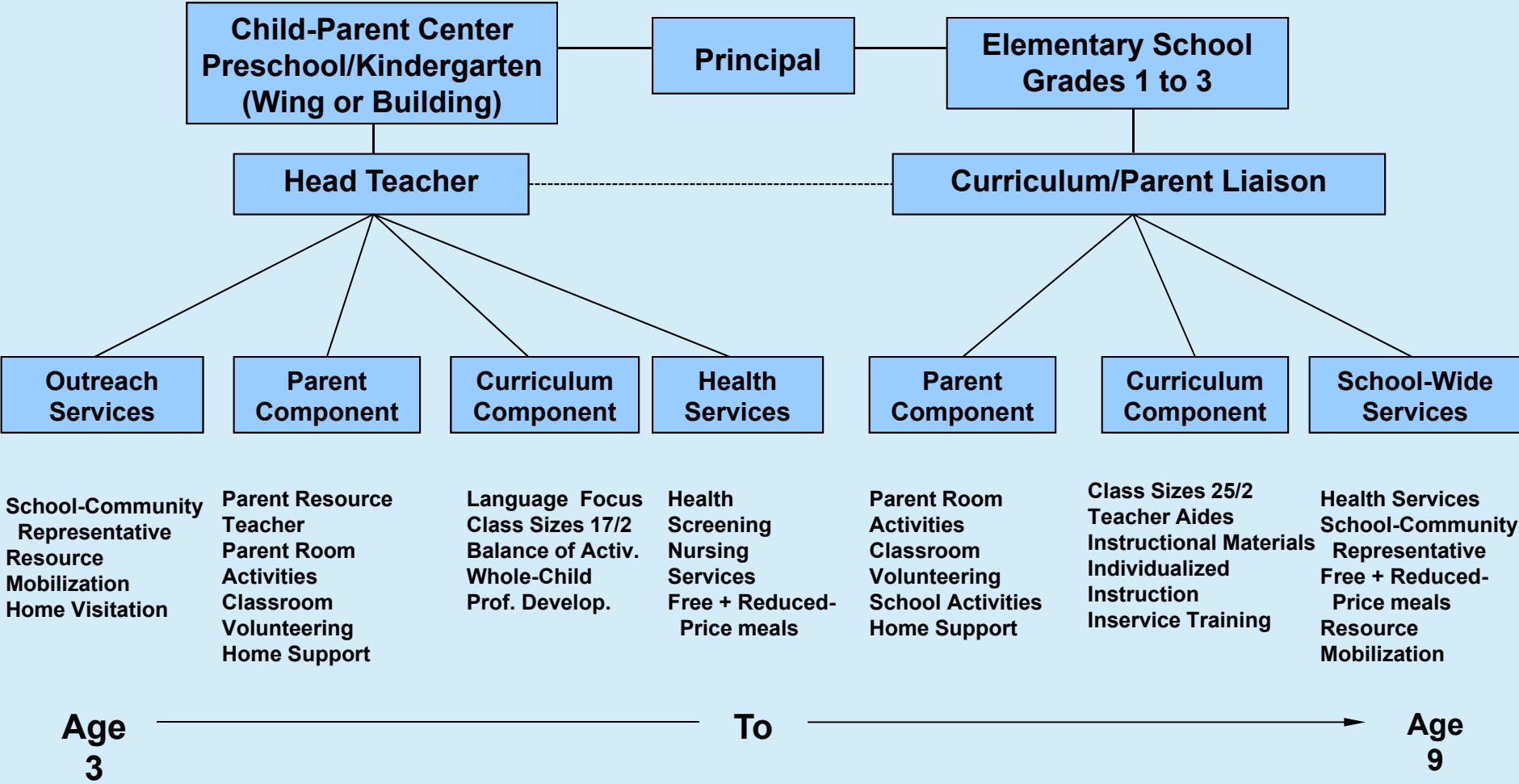
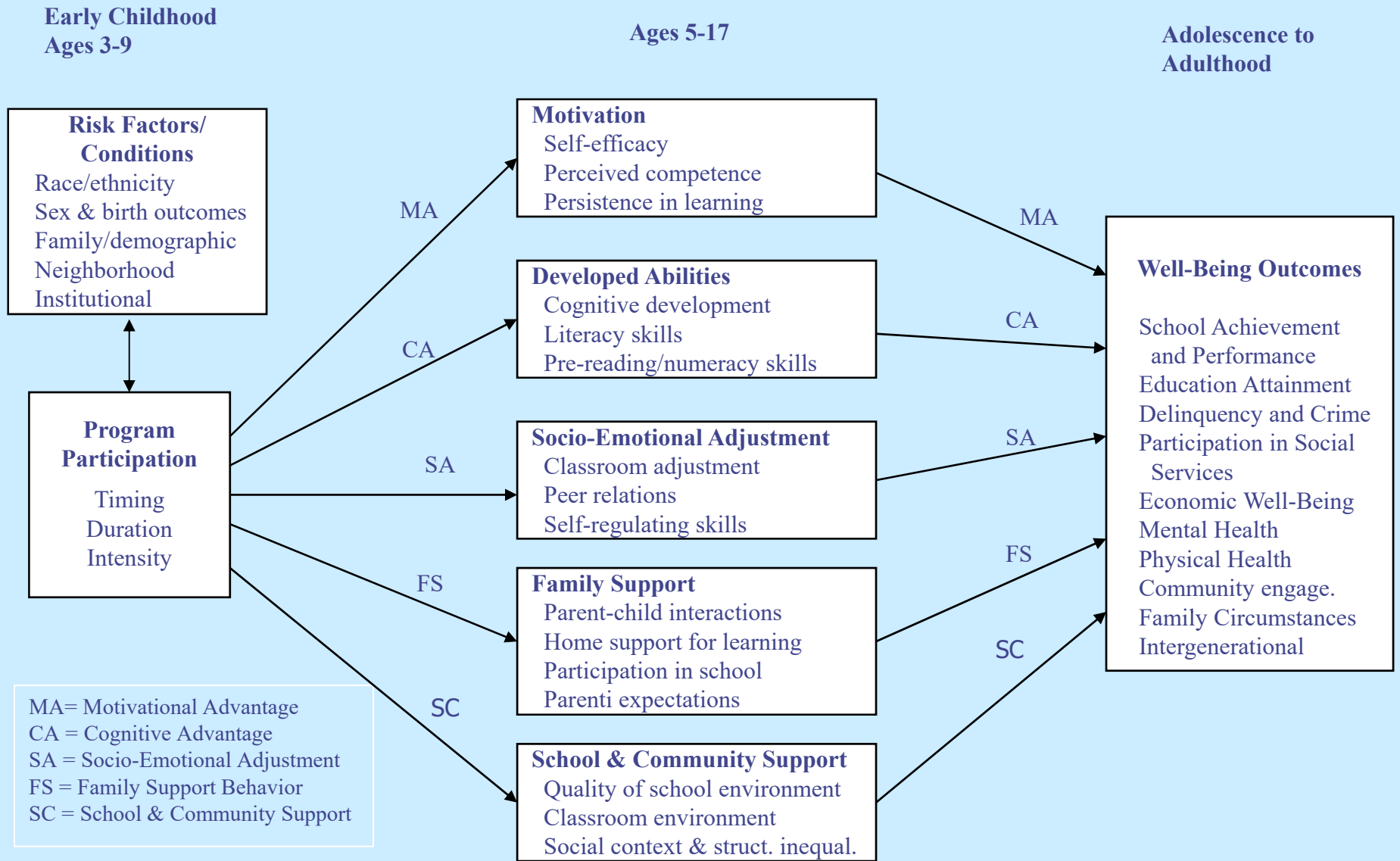


Figure 1: Five Hypothesis Model of Early Childhood Program Impacts



P-3 History and Key Elements

Reynolds, Ou, Mondi, Giovanelli.(2019). Reducing poverty and inequality through preschool-to-3rd grade prevention services. *Amer. Psych*;74(6):653-672.

CPC-P3 shows strong evidence of long-term benefits and a high return on investment.

Chicago Longitudinal Study

Born in 1979-1980, the CLS cohort of 1,539 children from low-income families (93% Black, 7% Hispanic) attended CPCs beginning at age 3 (fall 1983; n = 989).

Controls attended the usual early childhood programs in the district (n = 550) from randomly selected schools. CPC participation continued up to 3rd grade (6 years).

Over 90% have been tracked successfully to age 42 with on-going data collection.

Outcomes at Ages 35-37 (Ns=1042-1218)

Economic:

Earnings

Mental Health

Psychological Well-Being

Physical Health

Cardiovascular (AHA index)

Q1

Main Effects (after adjustment)

Q2

Select Subgroups

Q3

Mediation via 5HM

Moderators Question

Do estimated impacts differ by neighborhood poverty at midlife, history of discrimination, and sex?

This is effect modification.

Midlife survey: Have you experienced any of the following forms of discrimination in your life because of your race, ethnicity, gender....

Denied a job offer	37%
Denied a job promotion	29%
Denied a bank loan	18%
Hassled by police	54%
Fired from a job	22%
Discouraged by teacher (higher ed)	17%
Denied a scholarship	5%
Prevented from renting/buying	22%
Denied/received inferior medical care	15%
Forced to leave neighborhood	9%

Mediation Question

What percentage of the estimated main account is explained (accounted for) by full set of mediators?

One set for PreK and one for P-3.

This percentage reduction approach only examines direct effects.

Mediators

1. CA: 4 included (e.g. achievement scores)
2. SA: 3; socio-emotional learning
3. MA: 3; school commitment
4. FS: 3; parental school involvement
5. SC-1: 3; school quality
6. SC-2 2; history of discrimination
7. Cross-domain: Years of education by age 34

Percentages of Main Effects Explained in Prior Studies

Outcome (24-28y)	%
Years of Education	48
Occupational Prestige	70
Health Insurance	47
Depressive symptoms	All
Incarceration	48
Felony Arrest	84

Confirmatory Analyses

Building on prior model specifications

Confirmatory evaluation approach

No Post hoc analysis

Some Prior Work on Processes

Confirmatory program evaluation: A method for strengthening strengthening causal inference. *American Journal of Evaluation*, 1998

Pathways of program effectiveness. In *Success in early intervention*. 2000, U of Nebraska Press

Mechanisms of long-term effects: Gender subgroup analysis. *Children & Youth Services Review*, 2010

CPC confirmatory analysis of age 24 outcomes using 5HM. *Child Development*, 2011

Confirmatory analysis of 5HM in CPC, Perry Preschool, and Abecedarian Projects. In *Health and education in early childhood*. 2014, Cambridge

The Child-Parent Center Education Program and Economic Well-Being in Midlife

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Background

- Long-term effects of public early childhood intervention in developmental outcomes in adulthood
- Impacts on economic well-being are under-investigated

Research Questions

- What are the effects of the CPC program on economic well-being?
- Do estimated effects differ by moderators? neighborhood poverty at midlife, history of discrimination, and gender
- Does the Five-Hypothesis Model (5HM) account for the observed program effects?

Study Sample

- 1,218 youth from the CLS
- The mean age in August 2017 was 37.3
- Data sources of outcome:
 - the Illinois Department of Employment Security (IDES)
 - the midlife survey

Outcome

- Average annual income in 2017\$
(M=\$28,300, SD=\$21,777)

The entry wage of all occupations in IL in 2017 is \$22,344; the median wage of all occupations in IL in 2017 is \$38,873

Data Analysis

- Regression
 - Covariates

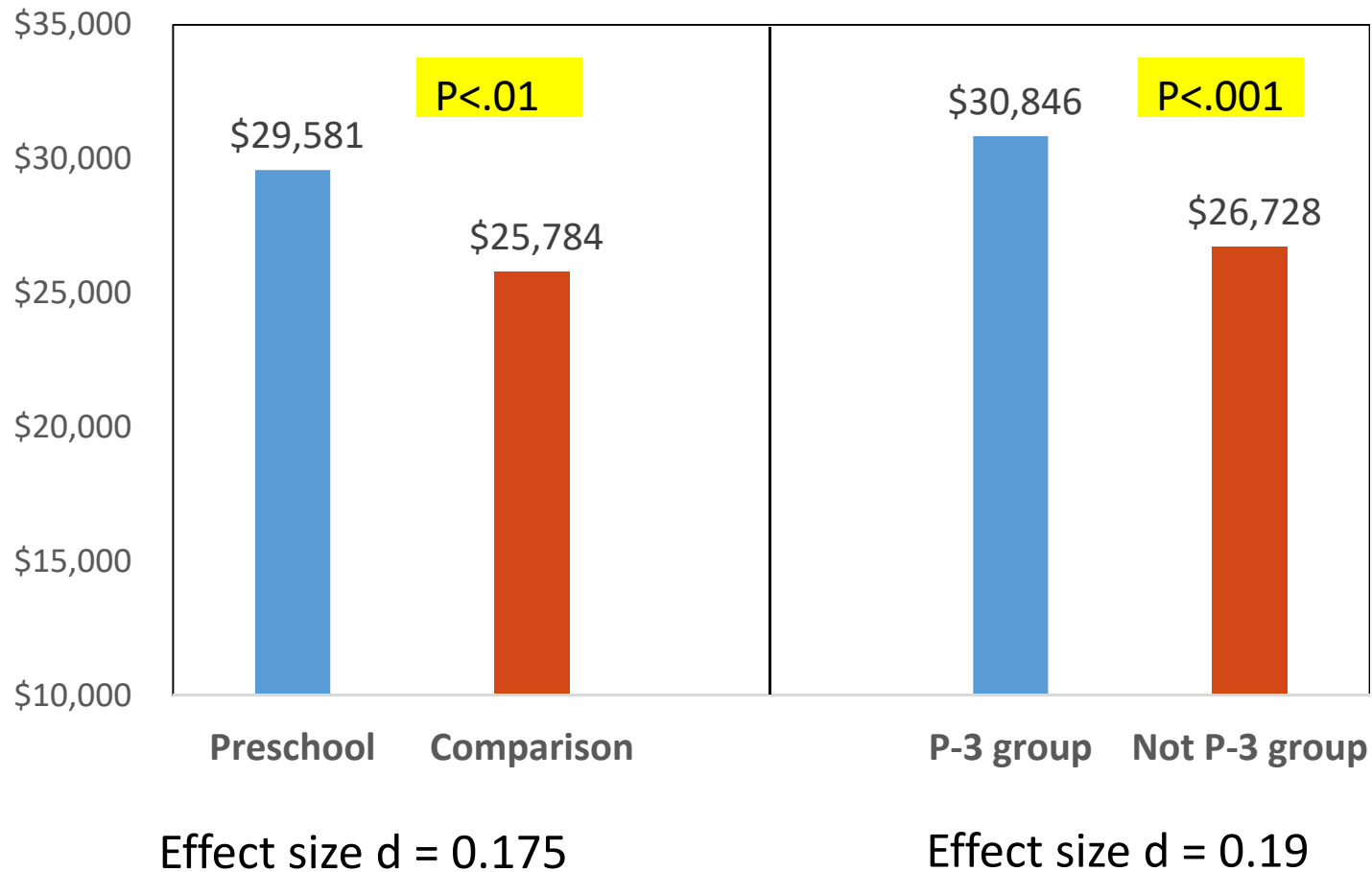
- Moderation
 - Interaction effects

- Mediations of the main effects
 - Hierarchical regression

Results



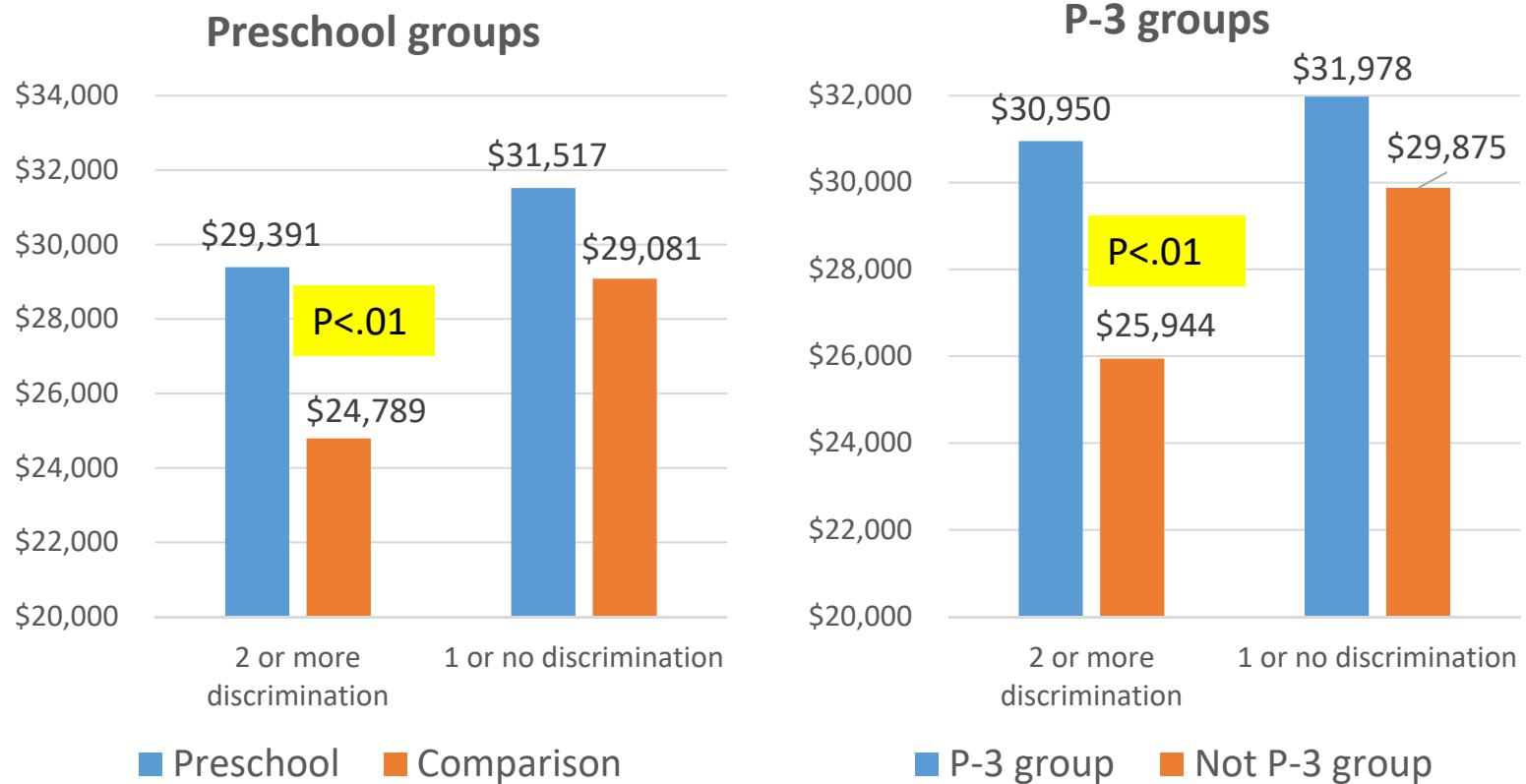
Q1. CPC effects on average annual income (2017\$)



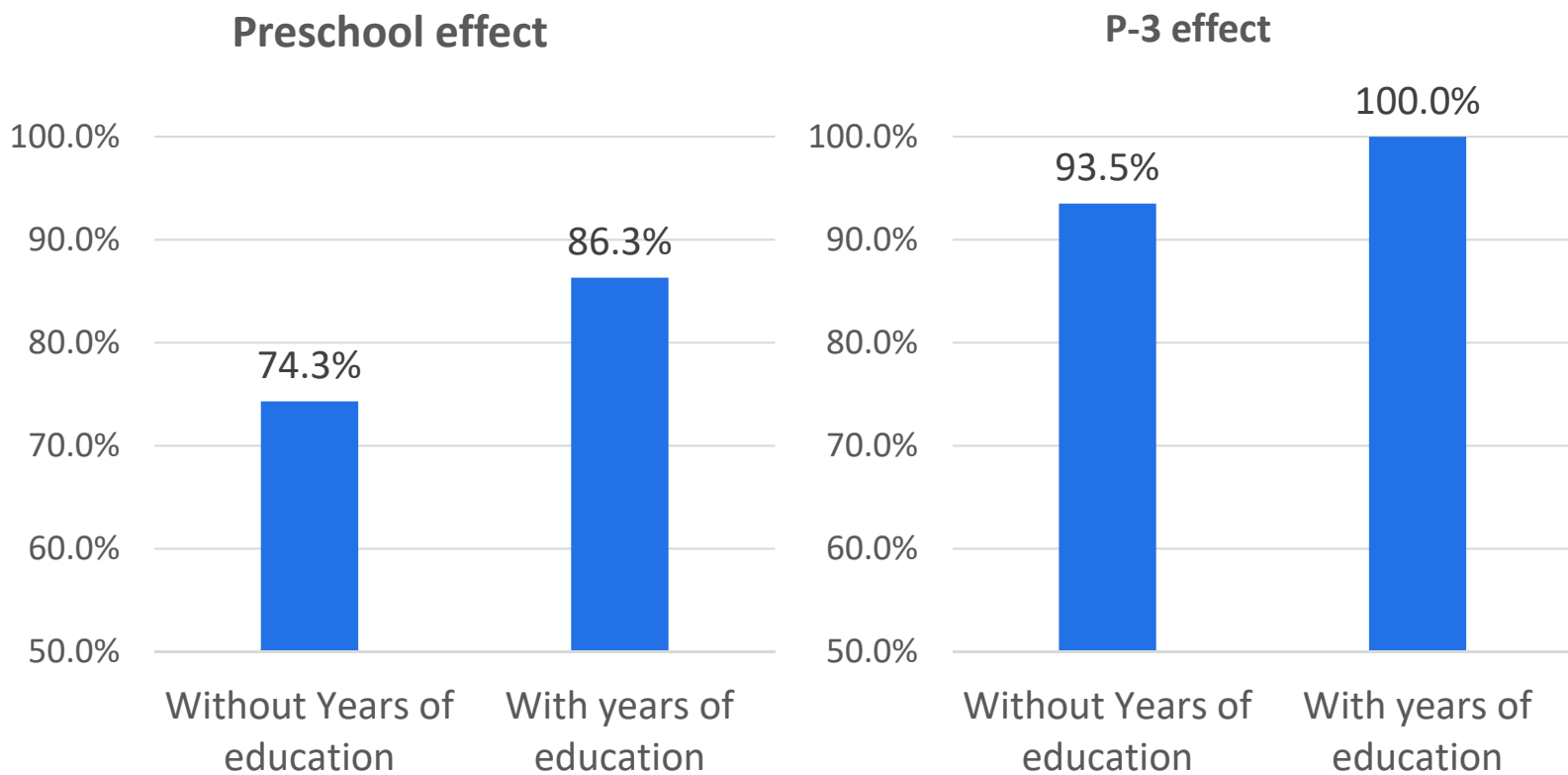
Q2. Moderation: interaction effects

	High neighborhood poverty at midlife	2 or more discrimination experiences	Female
Preschool	<i>P</i> =0.461	<i>P</i> =0.226	<i>P</i> =0.729
P-3 group	<i>P</i> =0.932	<i>P</i> =0.759	<i>P</i> =0.333

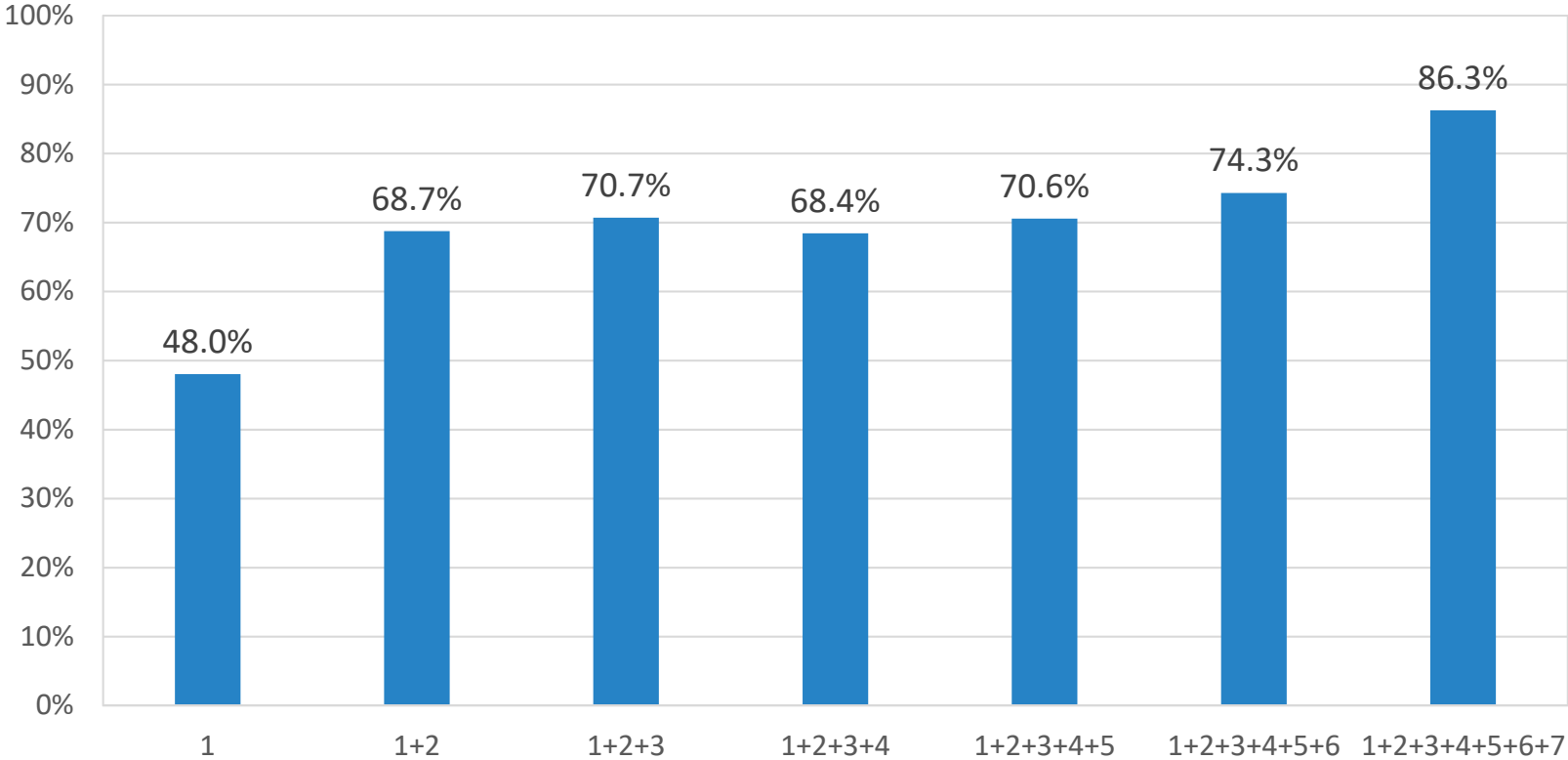
Q2. Subgroups: Discrimination experiences



Q3. Percent reduction of main effects



Q3. Percent Reduction of Preschool Participation Main Effects Associated with 5HM



1=CA; 2=SA; 3=MA; 4=FS; 5=SC-1; 6=SC-2; 7=Years of education age 34



Q3. Significant mediators of preschool effect (final model with all mediators)

Significant Mediators	Standardized coefficients
ITBS reading 8th grade	.099*
Juvenile delinquency	-.112***
Peer social skill	.080**
School commitment	.066*
Magnet high school attendance	.087**
Discrimination history	-.059*
Year of edu at age 34	.326***

** $p < .05$; *** $p < .001$

Q3. Significant mediators of P-3 effect (final model with all mediators)

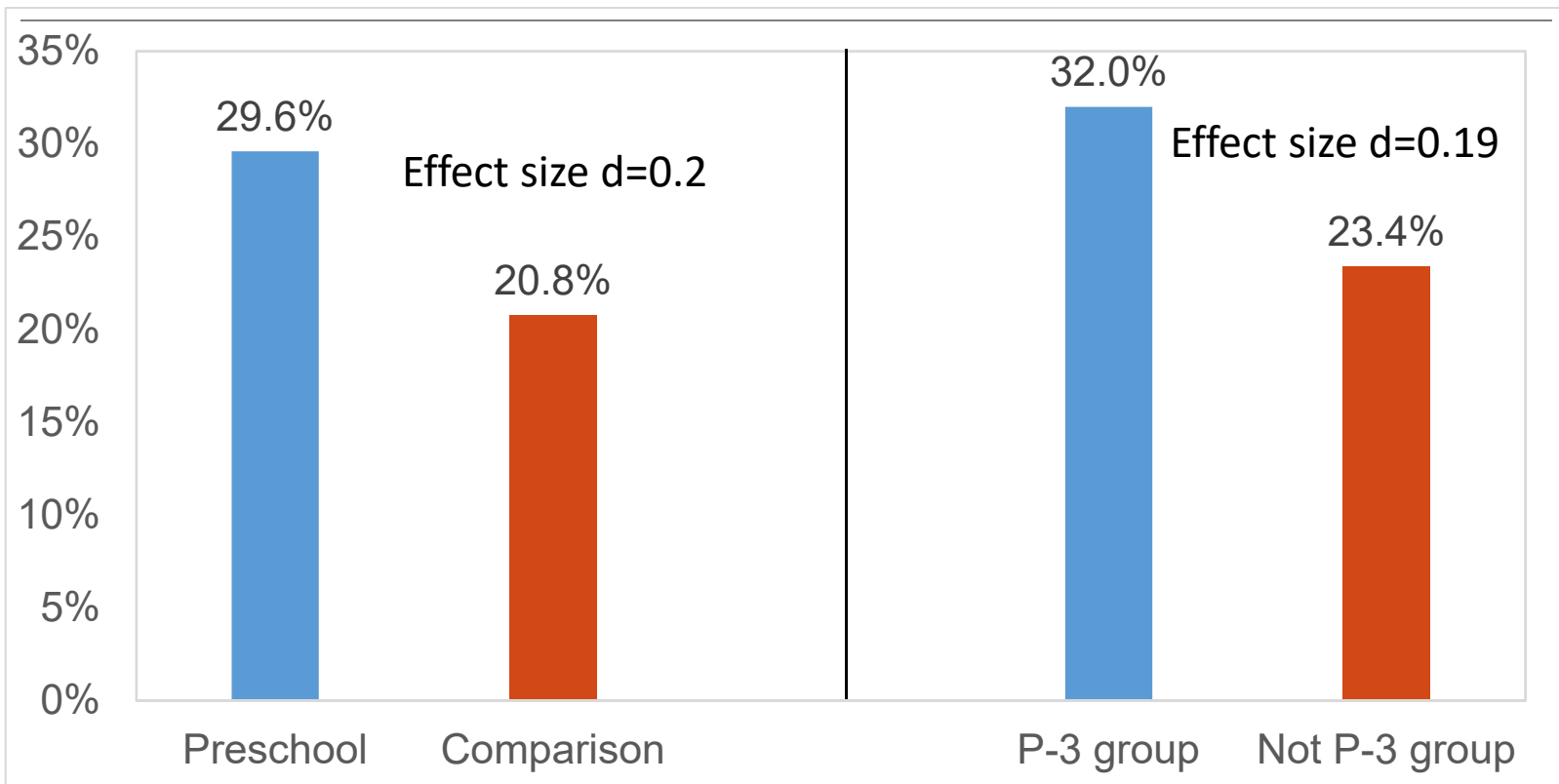
Significant Mediators	Standardized coefficients
ITBS reading 8th grade	.083*
Juvenile delinquency	-.113***
Magnet high school attendance	.079**
Discrimination history	-.060*
Year of edu at age 34	.323***

** $p < .05$; *** $p < .001$

Implications

- CPC program and economic well-being
- Pathways of the CPC effects

Adjusted rates of average annual income \$38,873 or higher (%) by Program Groups



Note. \$38,873 is the median wage of all occupations in Illinois in 2017.
The group differences are statistically significant ($p < .01$).


Acknowledgements

➤ Preparation of this presentation was supported by the National Institute of Child Health and Human Development (R01HD34294)

➤ For more information about the Chicago Longitudinal Study, visit:

<https://innovation.umn.edu/cls/>





Impacts of the Child-Parent Center Intervention on Cardiovascular Health at Age 37

Nishank Varshney, Arthur Reynolds, Judy Temple

University of Minnesota, Twin-Cities

Research Questions

- Is there a sustained impact of the Chicago Child-Parent Center (CPC) early childhood education program on cardiovascular health at age 37?
- Do the impacts vary by gender, neighborhood poverty, and history of discrimination?
- What percentage of this effect can be attributed to the mediators from the Five-Hypothesis Model (5HM)?

Data

Data Sources:

- Participant survey at age 35-37 (total n = 1125; AHA n = 1042)
- Health Exam at age 37-39 (n=301)
- Correlation between exam and survey reports 0.85

Outcome Measure

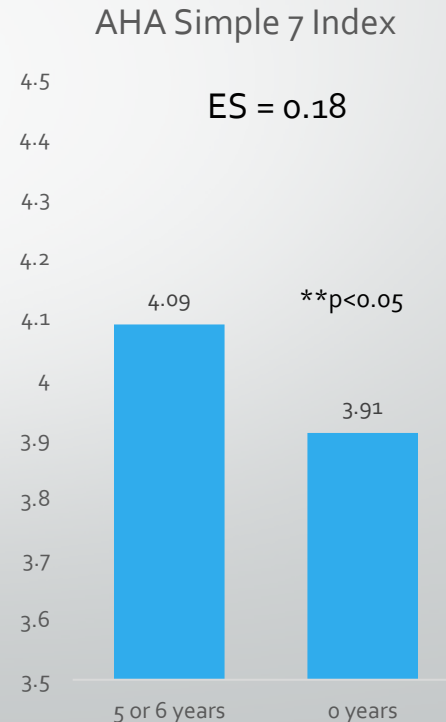
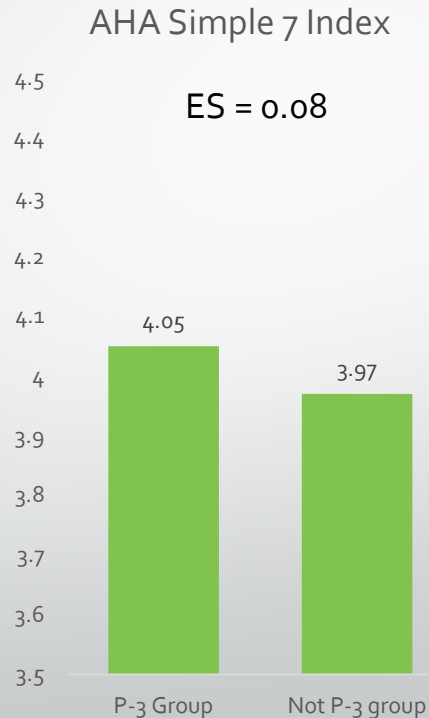
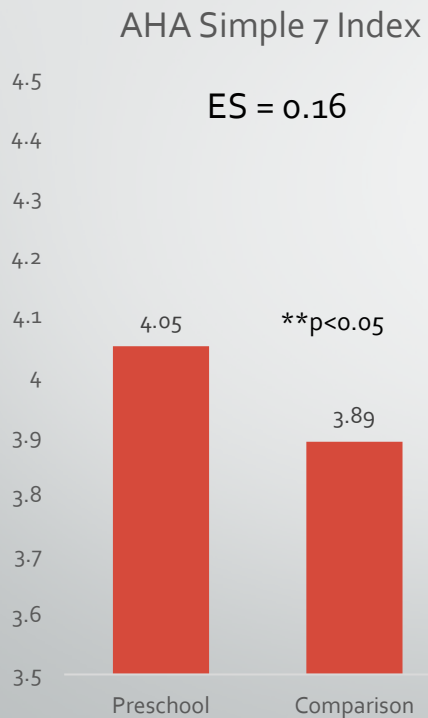
American Heart Association - Life's Simple 7

Range 1-7, M: 4.00 (sd=.99); 5+ = 30%

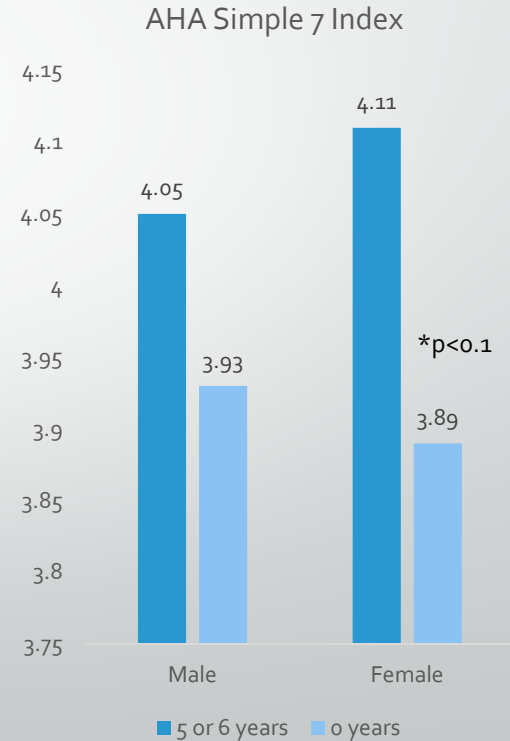
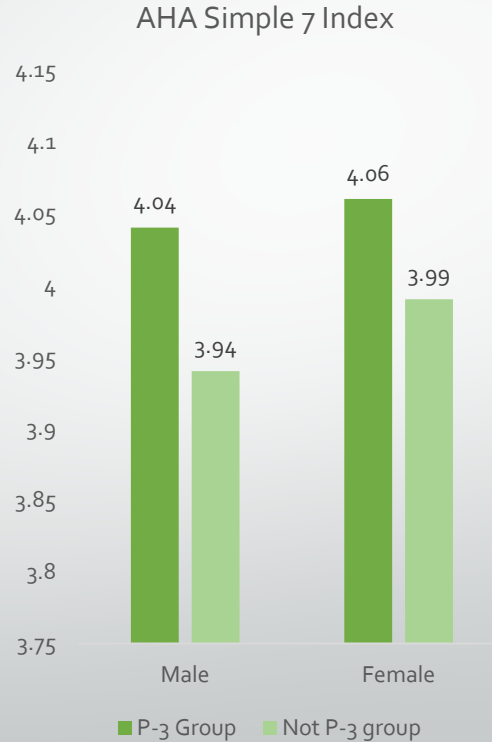
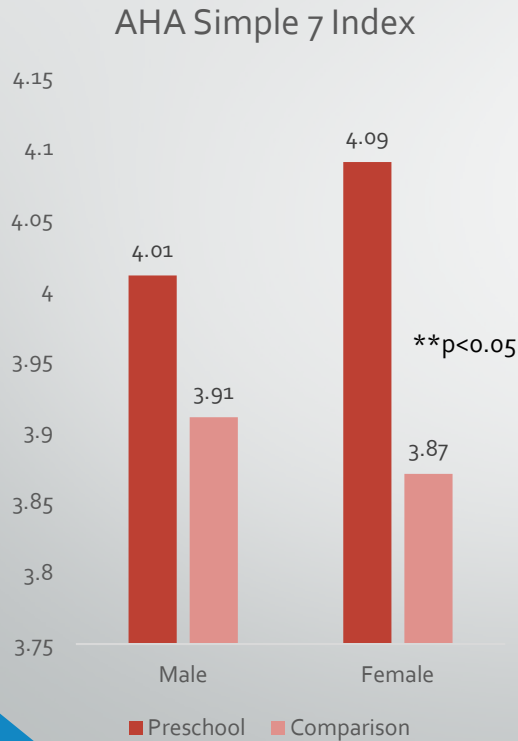
Sum of all ideal counts from each of the 7 indicators:

- **Healthy Weight** (BMI < 25)
- **No Smoking** (Never smoked cigarettes)
- **Healthy Nutrition** (based on healthy items in the survey)
- **Physical Activity** (75+ mins of vigorous or 150+ mins of moderate)
- **Normal Range Blood Pressure** ($\leq 120/80$ or no report of high bp)
- **Normal Cholesterol** (<200 or no reported problem range)
- **Normal Blood Sugar** (no reported problem/treatment for diabetes)

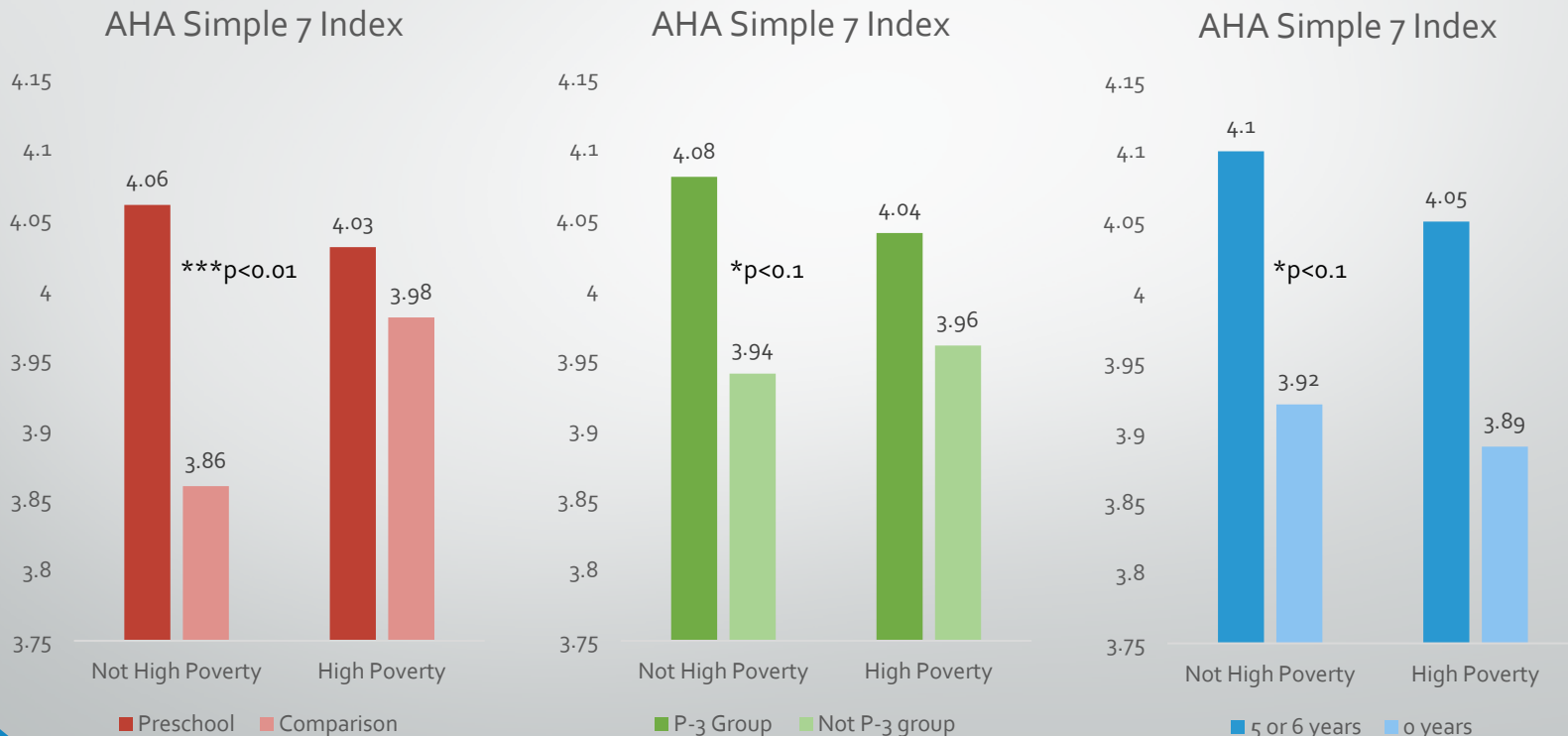
Outcome by Program Groups



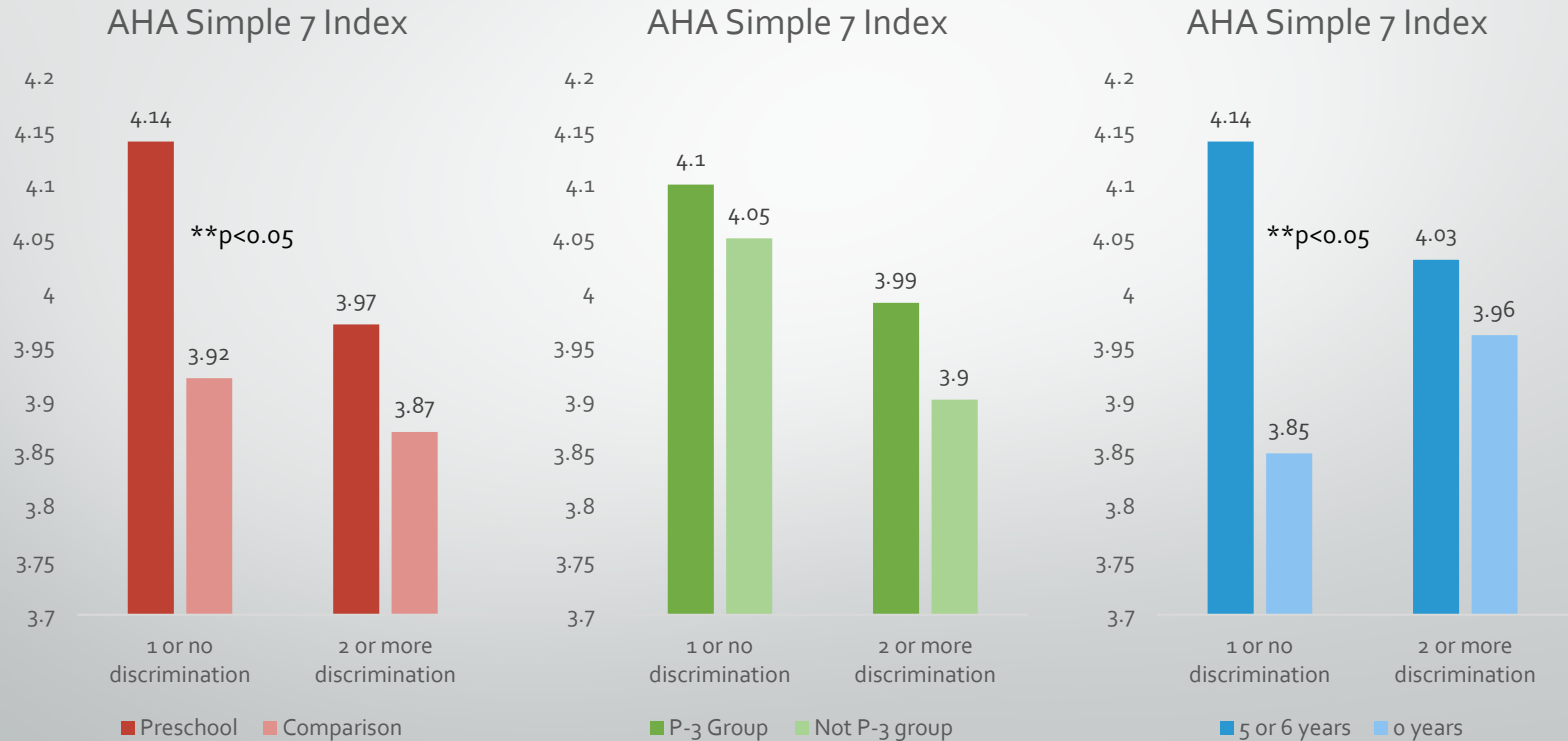
Subgroup Analysis: By Gender



Subgroup Analysis: By Neighborhood Poverty in Midlife



Subgroup Analysis: By Discrimination Experiences

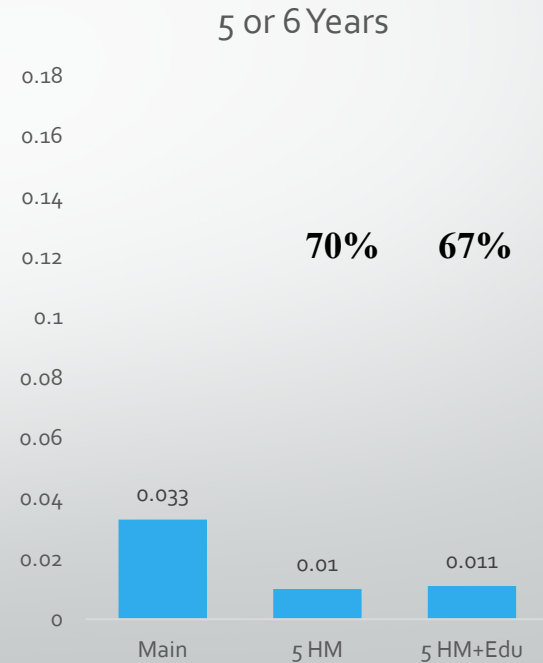
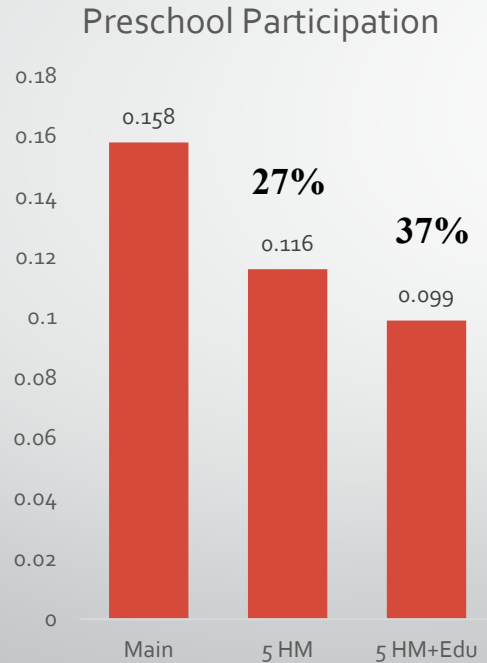


Results: Moderated effects

	Neighborhood Poverty	History of Discrimination	Female
CPC Preschool	0.024	-0.133**	0.007
CPC P-3	0.015	-0.133**	0.012
5 or 6 years	-0.040	-0.012	0.009

Significance Level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Percentage Reduction of main effects association with 5 HM for AHA Simple 7 Index



Conclusion

- Recent CBA found B/C Ratio in the range of 1.35 to 3.66
- High-quality early childhood education with comprehensive services is associated with improved cardiovascular health
- The 5 HM model mediates a significant percentage of the impact
- School commitment, parent expectations, and ed attainment were among strongest mediators

Limitations & Future Directions

- The 7 indicators relied on self-reports, which may over-report good health
- Framingham Risk Score



Thank You!

CPC Impacts on Psychological Well-Being

Mirinda Morency, LMSW, Arthur Reynolds, PhD, & Christina Mondri-Rago, PhD

University of Minnesota, Twin Cities | Institute for Child Development

HCRC Lunchtime Talk, October 18, 2022

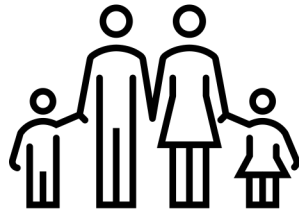
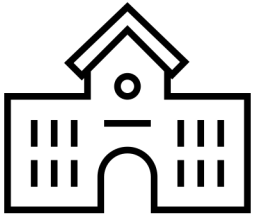


What is Psychological Well-Being (PWB)?

The extent to which individuals have goals and purposes in life, realize their potential, have quality relationships with others, and feel responsible for their own lives (Ryff, 2014).



Significance of PWB



- The impact of early contextual influences on later psychological well-being (PWB) has not been investigated.
 - Identifying social and environmental determinants of well-being early in life can help prevent the onset of problematic behaviors and increase return on investment.
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Research Questions:

1. Does participation in the Child-Parent Center (CPC) program impact psychological well-being (PWB) at midlife?
2. Do these predictive patterns vary by neighborhood poverty, history of discrimination, and sex?
3. To what extent do the mediators of the 5-Hypothesis Model (5HM) account for the estimated direct effects of CPC participation on PWB in adulthood?



Outcome Measure

Psychological Well-being-Shortened
(PWB-S; Ryff & Keyes, 1995; adapted from Ryff 1989)

Principal component analyses revealed a potent dimension (i.e., **purposeful management of responsibilities**) of PWB that accounted for the most variance.

"Some people wander aimlessly through life, but I am not one of them."

"The demands of everyday life often get me down."

"Maintaining close relationships has been difficult and frustrating for me."

"In general, I feel I am in charge of the situation in which I live."

Reliability
=0.75

Summary Descriptive Statistics of PWB

N= 1,112

M(SD)=39.27(7.47)

Range=10-48

55.7% scored above
the average

Results Q1: Main effects

	Unstandardize d Coefficient	Standard Error	Effect Size
CPC Preschool	1.73**	0.52	0.23
CPC P-3	0.50	0.46	0.07
CPC Total (dosage)	0.21 (t=1.82)	0.11	0.03

*Note: CPC=Child-Parent Center; P-3= Participation of CPC from prek-3rd grade; Significance Level: ** $p < .01$ * $p < .05$*

Results Q2: Moderated effects

	Neighborhood Poverty	History of Discrimination	Female
CPC Preschool	0.30	-0.91	1.39*
CPC P-3	0.19	-0.82	0.74
CPC Total (dosage)	0.13	-0.27*	0.19

*Note: Significance Level: ** $p < .01$ * $p < .05$*

Results: Q3 Mediated Effects

5HM:
MA= Motivational Advantage
CA = Cognitive Advantage
SA = Socio-Emotional Adjustment
FS = Family Support Behavior
SC = School & Community Support

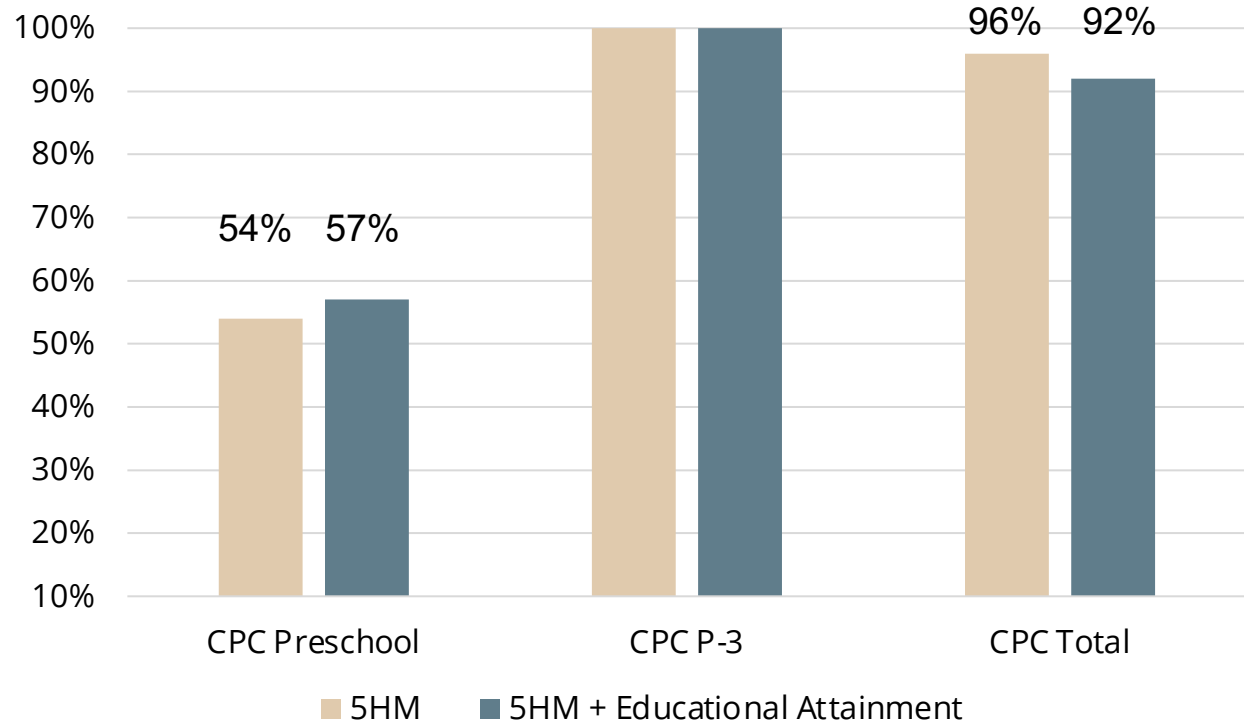


Figure 1. Percent reduction in the estimated main effect of CPC prevention program participation (relative to lesser participation) on psychological well-being associated with the measured mediators of the 5-hypothesis model.

Conclusion

Q1

Positive relationship between CPC preschool participation and long-term psychological wellbeing.

Q2

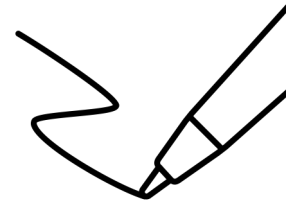
Moderation demonstrated that female participants get *more* of a benefit and that discrimination *reduces* the effect of CPC participation on midlife PWB.

Q3

Evidence for potential mechanisms across multiple social-ecological levels.

Implications for Practice & Policy

- High-quality preschool intervention as an effective tool to enhance developmental pathways to PWB in later life.
- The role of family and school factors that contribute independently or in interaction to help sustain long-term gains.
- Increase equity in preschool and other early childhood intervention programs.



Future Directions

- Validate the Ryff's PWB measure and explore related constructs (e.g., Life Satisfaction).
 - Examine subgroup breakdown.
 - Investigate the mediational paths leading to PWB within a structural equation modeling (SEM) framework.
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Thank you | Acknowledgements | Questions

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For more information on CLS, visit <https://innovation.umn.edu/cls/>



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