



**An Ecological Approach to Understanding Health Promoting Behaviors  
of Children from Low-Income Families: A Multi-Level Analysis**

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## ❖ Learner Objectives

- **The learner will be able to describe the individual and environmental factors influencing health promoting behaviors of children from low-income families.**
- **The learner will be able to understand the importance of multi-level approach for promoting health of children from vulnerable social groups.**





## ❖ Acknowledgment

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## ❖ Conflicts of Interest

- Authors declare no conflict of interest.





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**2. CONCEPTUAL FRAMEWORK**

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### ❖ **Overarching Goal**

#### **‘Healthy People 2020’ in USA**

- Achieve health equity, eliminate disparities, and improve the health of all groups
- Create social and physical environments that promote good health for all

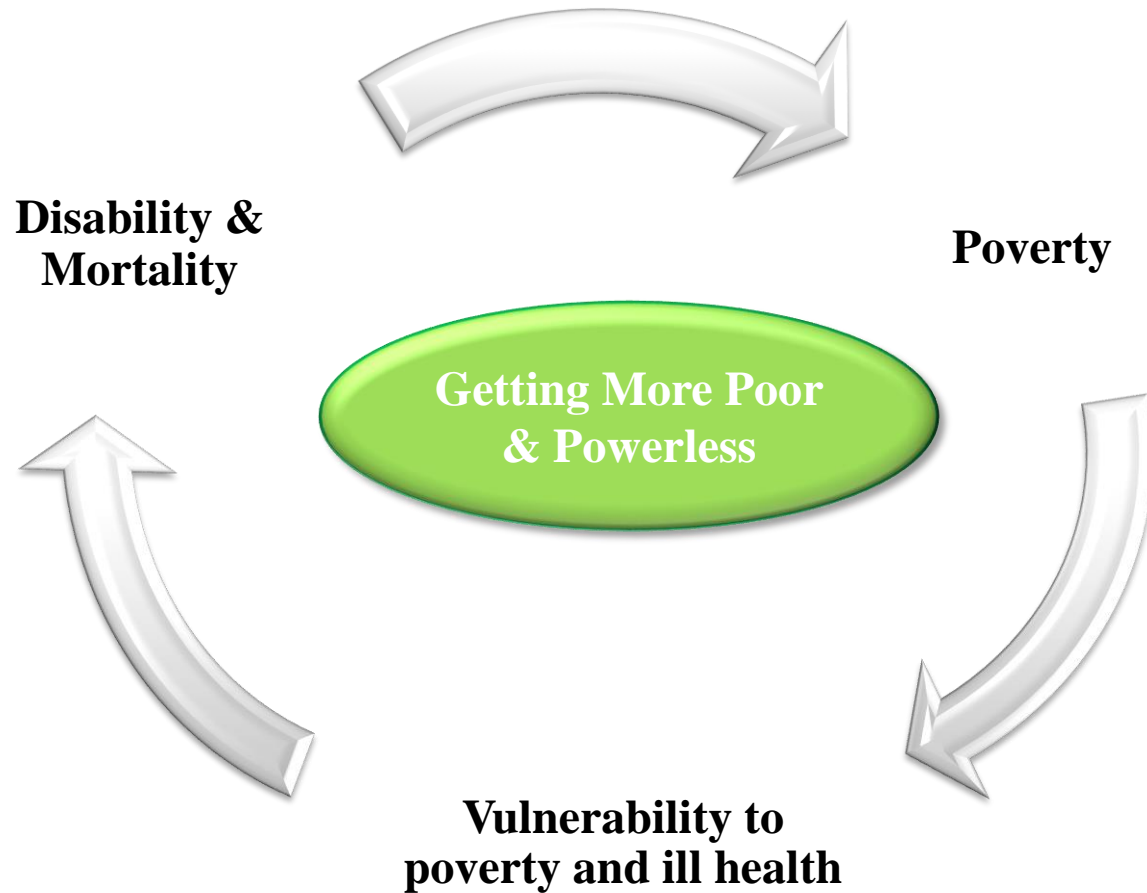
#### **‘Healthy Plan 2020’ in Korea**

- Increase healthy life years & Achieve equity in health

### ❖ **‘Poverty’ is a primary factor of ‘Child Health Inequality’**

*(Hernandez, Montana & Clarke, 2010)*

# THE VICIOUS CIRCLE OF POVERTY




## Health Promoting Behaviors (HPB) in Childhood



(Rauch & Lanphear, 2012; Riesch et al., 2013)

**The PURPOSE of this study was**

- ❖ **To document the level of HPB among children from low income families**
  - ❖ **To investigate the intrapersonal, interpersonal, and institutional factors influencing HPB among them**
- 



# CONCEPTUAL FRAMEWORK



## **Ecological Models of Health Behavior**

*(McLeroy, Bibeau, Steckler, & Glanz, 1988)*

# CONCEPTUAL FRAMEWORK

**INSTITUTIONAL**.....  
*Community Child Center*

CCC\* Characteristics  
Healthy Environment of CCC\*  
Teachers Workload

**INTERPERSONAL**.....  
*Family, Peers*

Family Characteristics  
Caregiver Characteristics  
Parenting Behavior specific to Healthy Lifestyle  
Peer Relationship

**INTRAPERSONAL**.....  
*Children*

Children Characteristics  
Self-Efficacy, Self-Regulation



**HPB**..... **Outcome**

*\*Health Promoting Behaviors=HPB, CCC=Community Child Center*

### ❖ Design

- **Non-experimental & cross-sectional descriptive study**

### ❖ Sample

- **68 community child centers located in 25 districts of Seoul (17% of the total)**
- **297 fourth to sixth grade elementary school students from low-income families, 297 caregivers, and 68 community child center teachers**
- **Below poverty: 20.5%, Near poverty: 43.4%, Local governor's approval: 36.0%**



# METHODS

## Measures

	Variables [Research Instrument]	Items	Respondent	Reliability
DEPENDENT	- HPB [Kim, Yang, Jeong, & Lee, 2007]	53	Children	.94
INTRA (Children)	- Grade/Age/Gender	3	Children	
	- Weight status [Lee et al., 2007]	2	Children	
	- Self-efficacy [Lee, Schwarzer, & Jerusalem (1994)]	10	Children	.94
	- Self-regulation [Bandy & Moore (2010)]	13	Children	.82
INTER (Caregiver & Peer)	- Economic status, Monthly income, Type of family	3	Caregiver	
	- Caregiver's Age/Gender/Education level	3	Caregiver	
	- Caregiver's weight status [WHO Western Pacific Region, 2000]	2	Caregiver	
	- Caregiver's HIB [Developed directly]	6	Caregiver	.88
	- Peer relationship [Lee & Yoo, 1995]	17	Children	.95
INSTITUTION (CCC)	- Number of children, Number of teacher, Working period	3	Teacher	
	- Deterioration grade	5	Teacher	
	- Perceived physical environment of CCC [Developed directly]	10	Children	.91
	- Health promotion programs for children	6	Teacher	
	- Disabled children/teacher ratio	2	Teacher	

HPB=Health Promoting Behaviors; HIB=Health Instruction Behaviors; CCC=Community Child Center

# METHODS

## Data collection procedures

Approval from the Institutional Review  
Board of Yonsei University

Selection of 70 Community Child Centers  
using Convenience Sampling

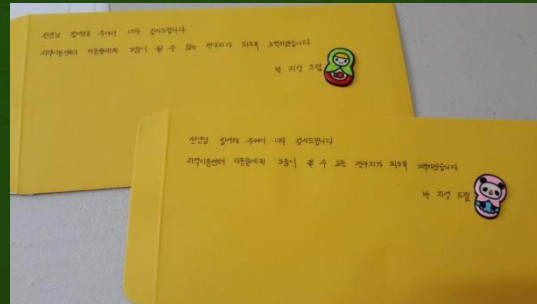
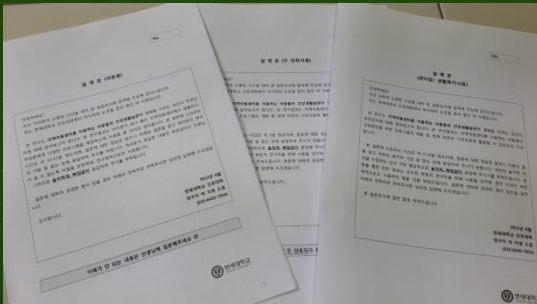
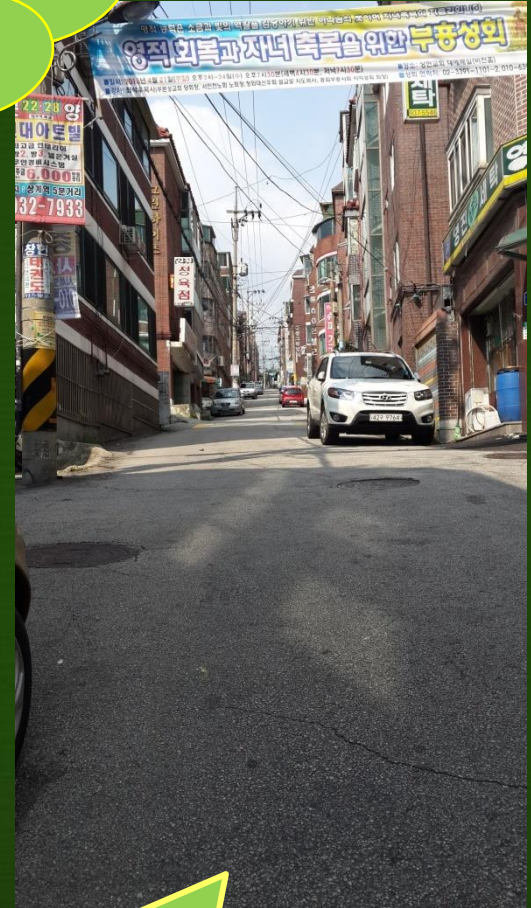
Training of Interviewers  
using Standard Guidelines

Questionnaire Survey  
(2013. 8. 13 ~ 2013. 10. 2)

# METHODS

## Data collection procedures

Every Day,  
I visited 4-5 centers.



“The Steep Slope”

# METHODS

Data collection procedures



Programs for Children

Training of Interviewers



### ❖ Data Analysis

- Descriptive statistics
- Independent t-tests, One-way ANOVA, Pearson correlation coefficients
- Multi-level regression analysis (**random-intercept model**)

### ❖ Random-intercept Model

- $Y_{ij} = \beta_{0j} + \beta_1 X_{1ij} + \beta_2 X_{2ij} + \dots + \beta_k X_{kij} + \varepsilon_{ij}, \quad \varepsilon_{ij} \sim N(0, \sigma^2) \leftarrow \text{Level 1}$
- $\beta_{0j} = r_{00} + r_{01} w_{1j} + r_{02} w_{2j} + \dots + r_{0l} w_{lj} + u_{0j}, \quad u_{0j} \sim N(0, \tau) \leftarrow \text{Level 2}$



# CHILDREN'S HPB LEVEL

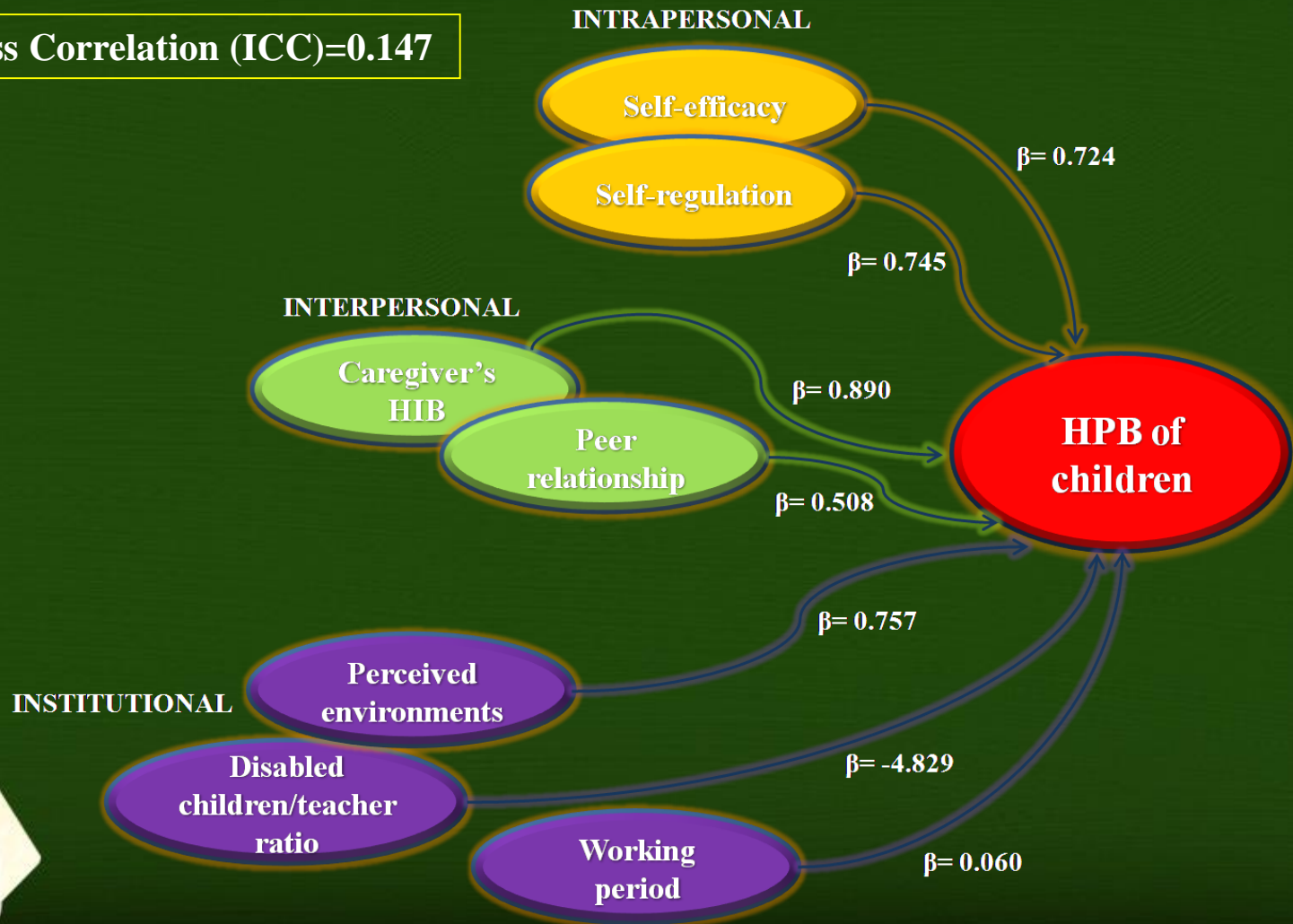
Results-1



# MULTI-LEVEL PREDICTORS OF HPB

Results-2

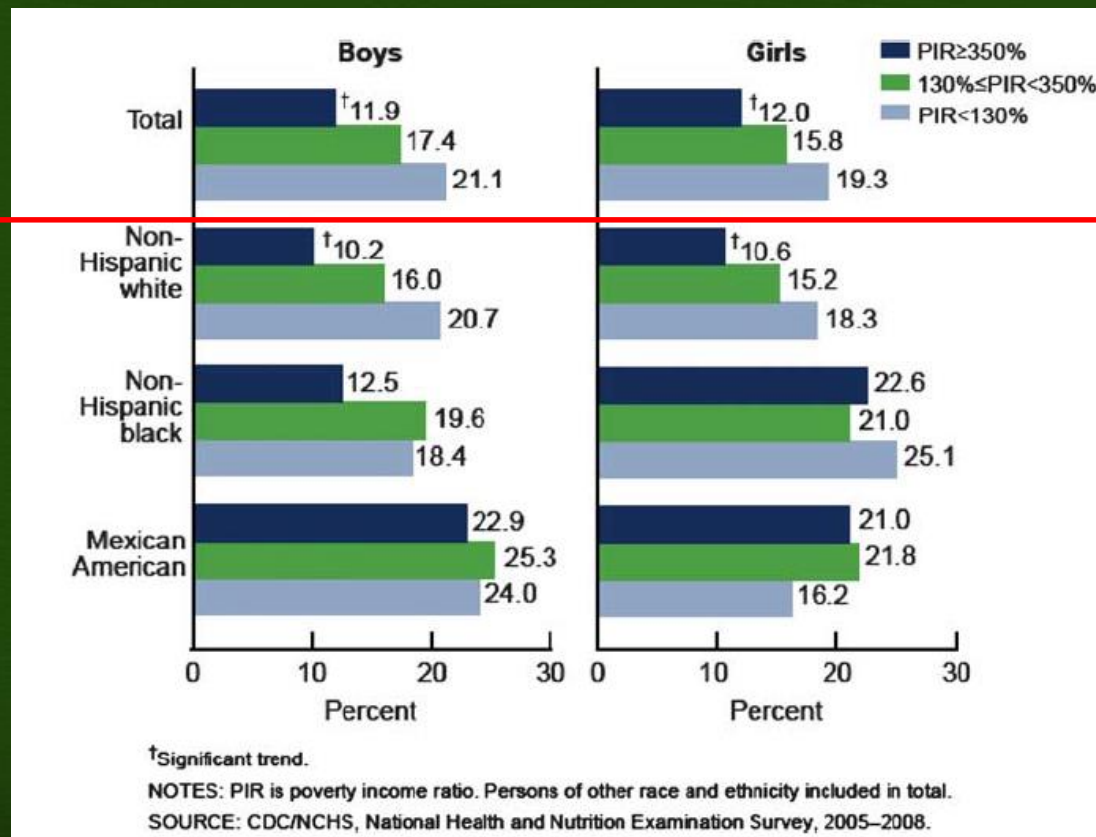
Intra-Class Correlation (ICC)=0.147



# CHILDREN'S HPB LEVEL

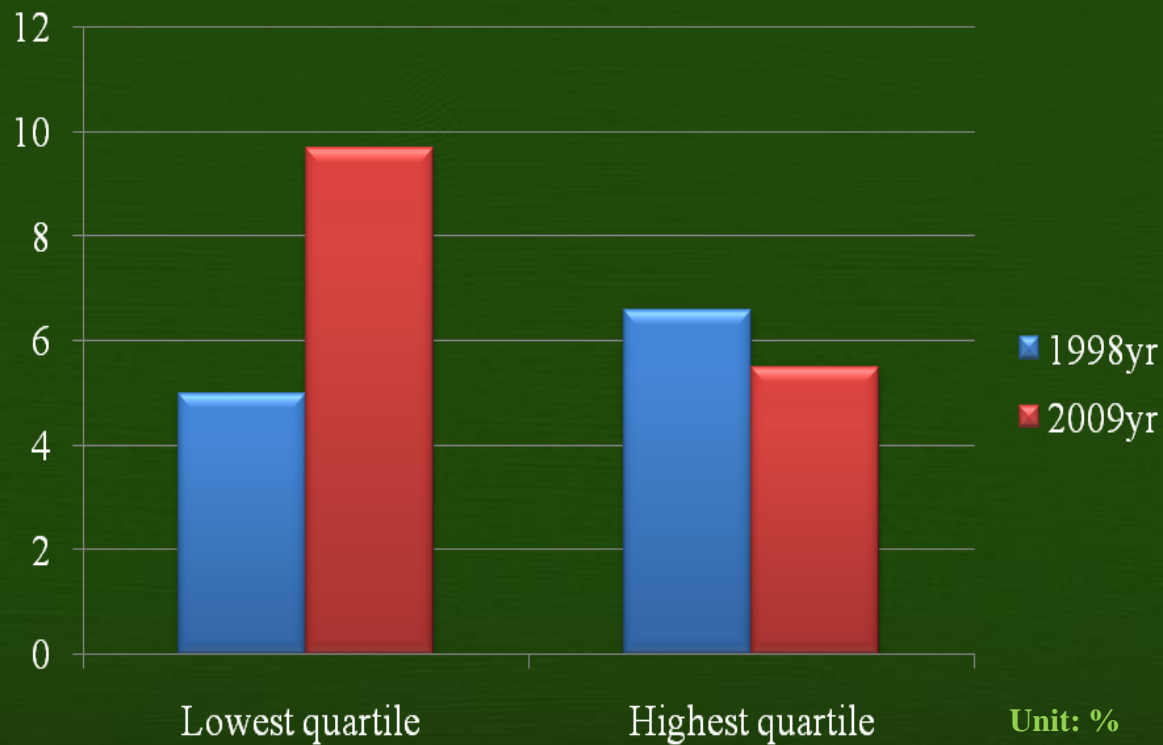
## Discussion-1

### Trends in Childhood Obesity in United States [2005-2008yr]



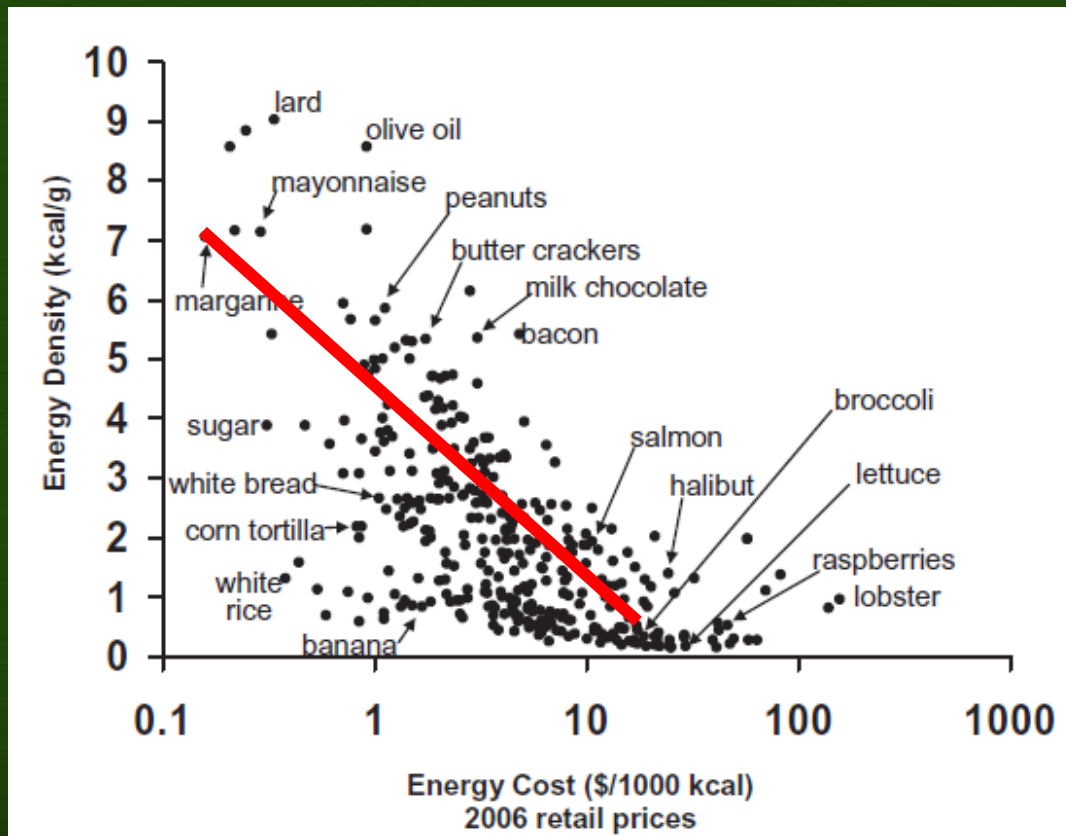
(Ogden, Lamb, Carroll, & Flegal, 2010)

## Trends in Childhood Obesity in Korea [1998-2009yr]



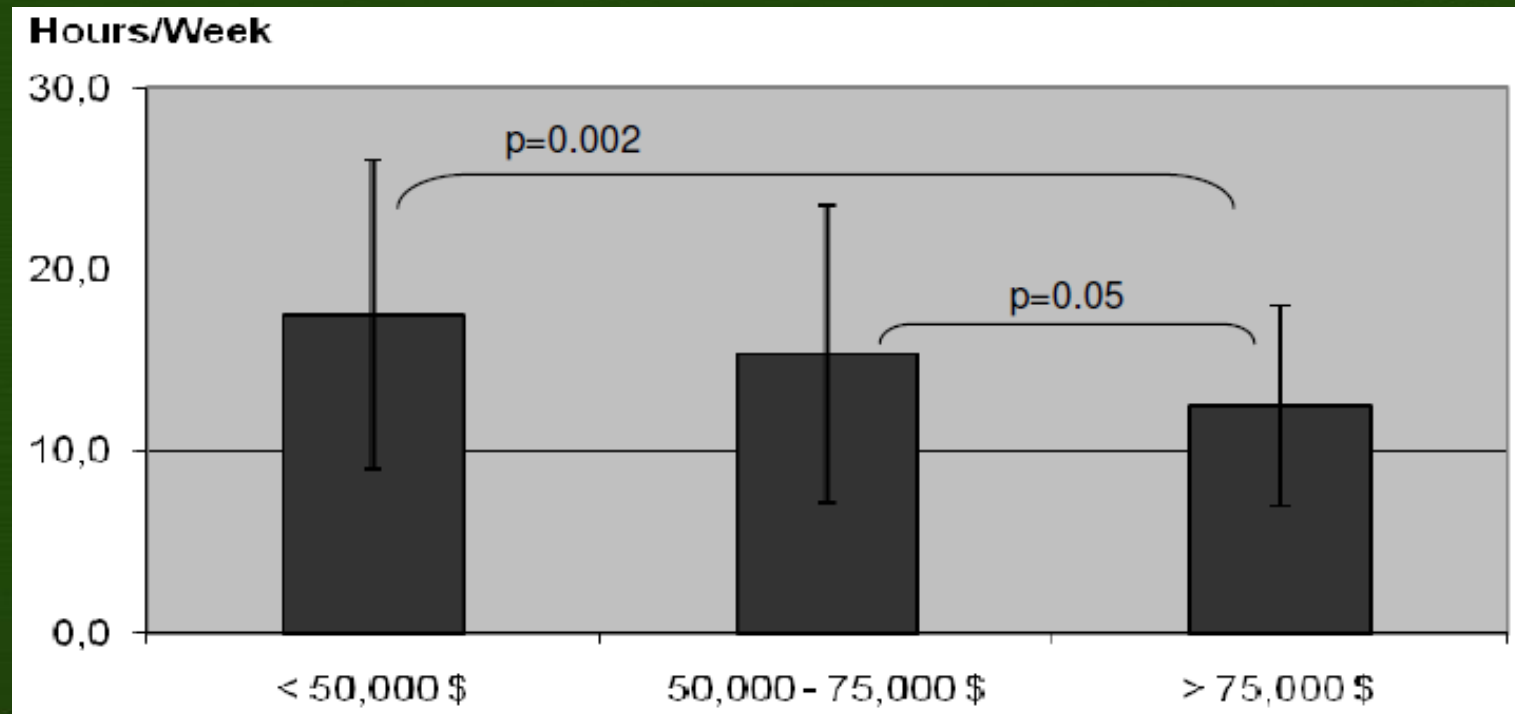
(Lee, 2011)

### Relationship between Energy Density of Foods & Energy Costs



(Drewnowski, 2009)

### Differences in Weekly Hours Watching TV by Household Income



(Drenowatz et al., 2010)

### ❖ Ecological Model

- The main premise of the model:

**Multi-level intervention is the most effective for behavioral change** (Sallis et al., 2009)

### ❖ Community-based Participatory Approaches

- Partnerships among Nursing Research Teams ↔ Community ↔ Government



# IMPLICATIONS FOR PEDIATRIC NURSING

## ❖ Pediatric Nursing

- The Ultimate Goal  
: To Promote Health or Wellbeing of All Children

- Meeting the Challenges of the 21st Century

Treatment of Disease

→ **Health Promotion & Maintenance**

Inpatient Acute Care

→ **Community-based Care**

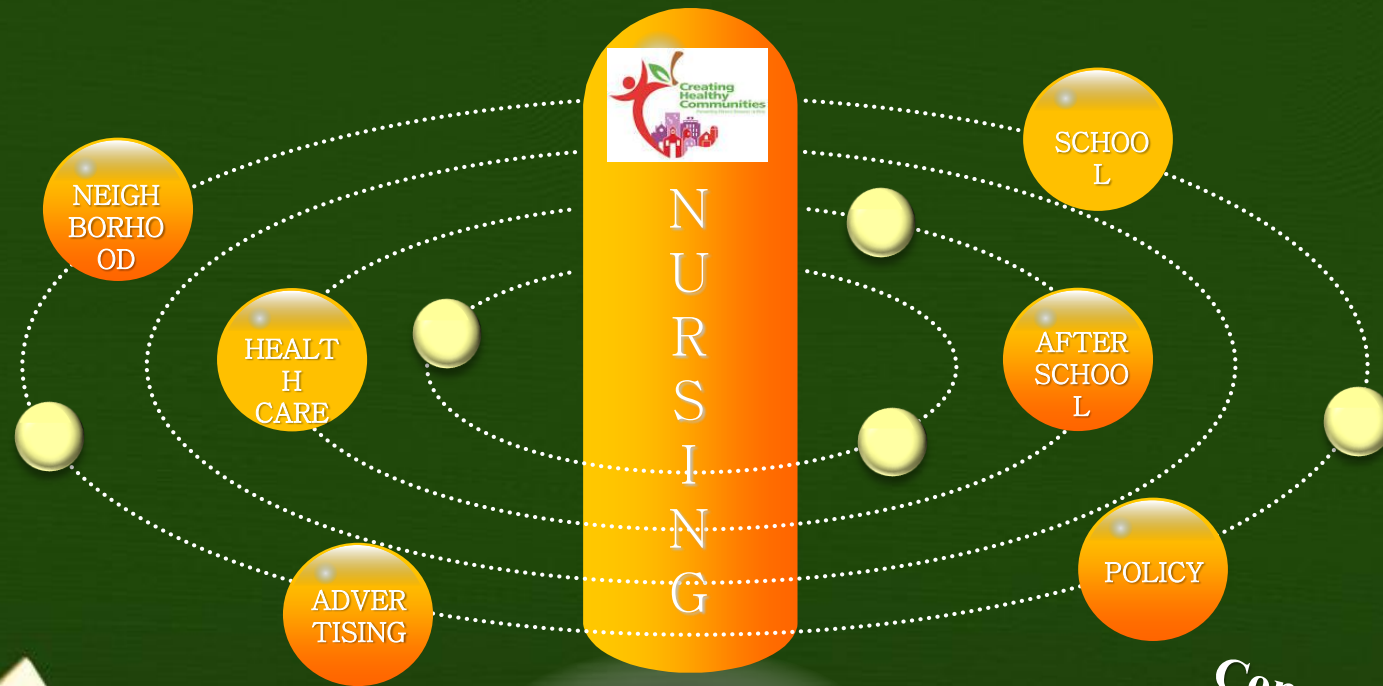


*(Potts & Mandleco, 2011)*



# RECOMMENDATION

## HEALTHY COMMUNITIES



*Communication  
Collaboration  
Partnership*





**Thank you !!**