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# Risky Health Behaviors and Behavioral Differences of the U.S. Youth: Quasi Evidence with Empirical Study: Policy Implications

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# Background

- **Although it is illegal to drink and drive in the U.S., forty-five percent of the traffic accidents among the age group of 14~18 are alcohol related. Alcohol is a leading factor in deaths related to motor vehicle accidents.**

- Risky health behaviors
- Motor vehicle accidents

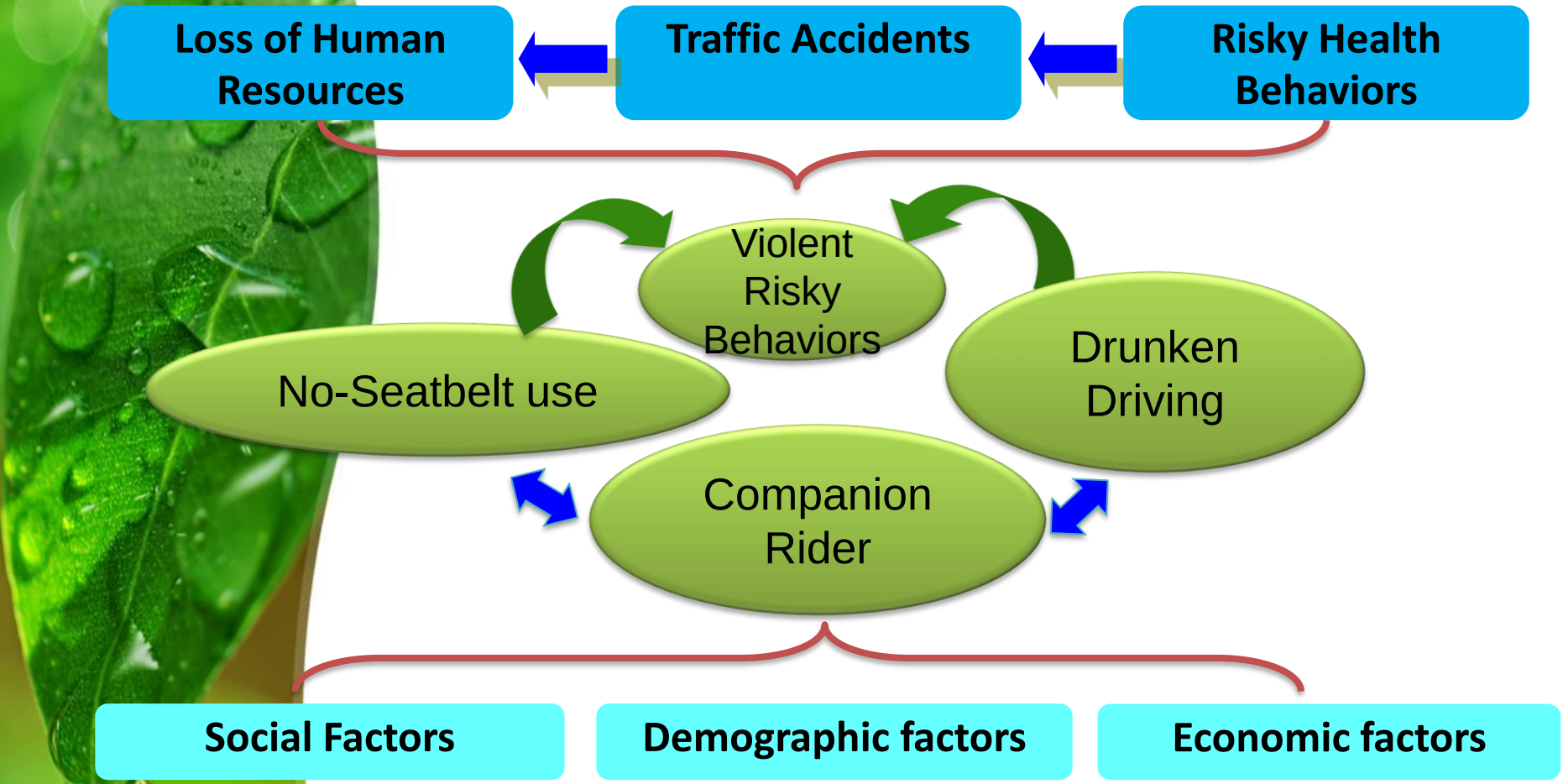
- Use of alcohol, tobacco, cocaine and other illicit drug use by **youth age groups**
- **Loss of Human Resources**

# *Objectives: Challenge and contributions*

**We evaluated and examined the relationships between alcohol and illicit drug use in American youth's and Three Types of violent risky behaviors:**

- **Drunk driving,**
- **Riding in a vehicle operated by an individual who is under the influence of alcohol, and**
- **Not wearing seatbelts.**

# Figure 1: Structural Implication



# *Method: Empirical Structural Model*

❖ **The following equations describe the basic three models of analysis:**

1) Drunk Driving $[DD]_i = \alpha_0 + \alpha_1 VBF_i + \alpha_2 RHB_i + \alpha_3 SEF_i + \alpha_4 DF_i + \varepsilon_i$ ....[1].

2) Companion Rider $[CR]_i = \beta_0 + \beta_1 VBF_i + \beta_2 RHB_i + \beta_3 SEF_i + \beta_4 DF_i + \varphi_i$ ....[2].

3) Not Wearing Seatbelt $[NSB]_i = \gamma_0 + \gamma_1 VBF_i + \gamma_2 RHB_i + \gamma_3 SEF_i + \gamma_4 DF_i + \upsilon_i$....[3].

VBF: violent risky behaviors; RHB: risky health behavior; SEF: socioeconomic factors; DF: demographic factors; ε, φ and υ: error terms.

# *Method and Data [1]*

## ❖ Equations 1, 2 and 3 represent:

- The relationship between **the violent risky behavioral choice** of individual "i", e.g. drunken driving [DD], riding in a car driven by someone who has been drinking [CR], not wearing seatbelt [NSB], and **risky health behavior** [RHB] e.g. binge drinking, smoking, marijuana, cocaine, and drink & drug.
- This research defines use of alcohol, tobacco, cocaine and other illicit drug use as **risky health behavior**.

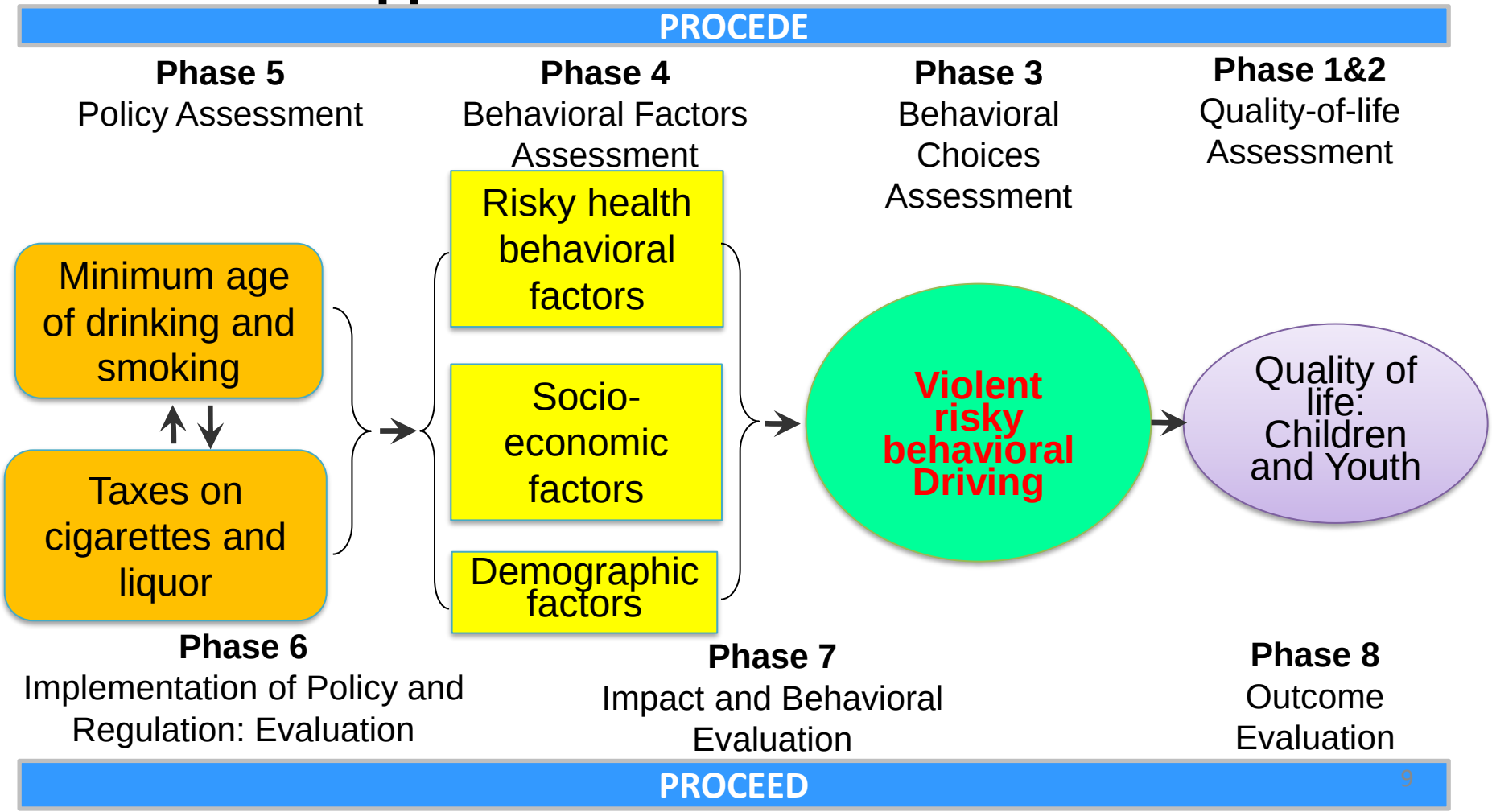
# *Method and Data [2]*

- The data used for this project is drawn from the **1992** [16296 samples] and **2017** [14684 samples] **National Youth Risk Behavior Survey** to examine the behavioral difference between two periods.
- Nationally representative sample of children and youth [**12~22 years old**] in the fifty states and the District of Columbia in the United States.

# *Method and Data [3]*

- **Statistical analysis** includes socio-economic factors and demographic factors in an extended PRECEDE-PROCEED model [**behavioral theoretical framework**] in Figure 2 to observe influential determinants.
- Multiple-regression statistical analyses were used to conduct and examine **effects** of risky health behaviors [drinking and illicit drug use], socio-economics factors and demographic factors **on violent risky behaviors** [1: drunk driving, 2: companion rider with a drunken driver, and 3: not wearing seatbelt while driving].

# Extended Application of PRECEDE-PROCEED Model



# Violent Risky Behaviors

**Behavioral relation among children and youth [12~22 years old]**

- ❖ Drunken driving ↑ => Companion ride ↑
- ❖ Drunken driving ↑ => Non-seatbelt use ↑
- ❑ Companion ride ↑ => Drunken driving ↑
- ❑ Companion ride ↑ => Non-seatbelt use ↑
- ➢ Non-seatbelt use ↑ => Drunken driving ↑
- ➢ Non-seatbelt use ↑ => Companion ride ↑

❑ Regarding children and youth behaviors, there are positively associated relationships with violent risky behaviors.

# Regression Results: Risky health Behaviors on Violent Risky Behaviors children and youth [12~22 years old]

1) Excess drinking ↑ => Drunken driving ↑
2) Smoking cigarette ↑ => Drunken driving ↑
3) Marijuana use ↑ => Drunken driving ↑
4) Illicit drug use ↑ => Drunken driving ↑
5) Drinks and Drugs ↑ => Drunken driving ↑

- **Excess drinking, Smoking cigarette, Marijuana use, Illicit drug use, and Drinks & Drugs have positive influences on "Violent Risky Behaviors".**

# Quantitative Evaluation: Risky health Behaviors on Violent Risky Behaviors children and youth [12~22 years old]

**Effects: Seatbelt use**

Excess Drinking ⬆ => 21% decrease in “Seatbelt use”

Smoking cigarette ⬆ => 28% decrease in “Seatbelt use”

**Effects: Companion ride**

Excess Drinking ⬆ => 153% increase in “Companion ride”

Smoking cigarette ⬆ => 115% increase in “Companion ride”

**Effects: Drunken driving**

Excess Drinking ⬆ => 200% increase in “Drunken driving”

Smoking cigarette ⬆ => 120% increase in “Drunken driving”

# Empirical Results: Other interesting factors on Violent Risky Behaviors children and youth [12~22 years old]

## Effect of Socio-demographic factors:

- Grade performance ↑ => Seatbelt use ↑
- Grade performance ↑ => Companion ride ↓
- Grade performance ↑ => Drunken driving ↓

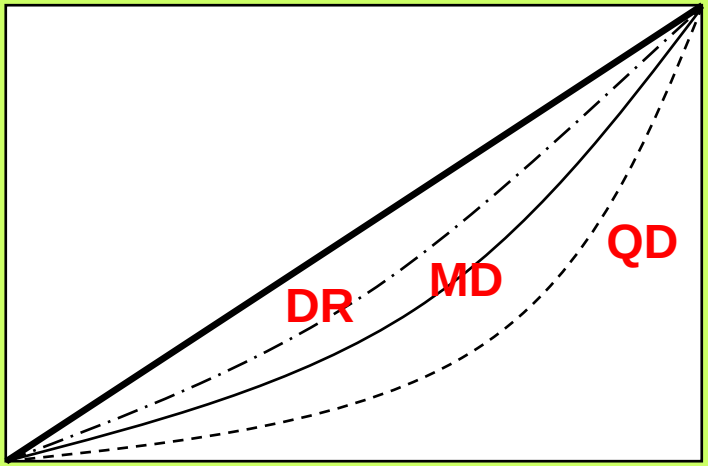
### Female compared to Male

- Impact of Female > Male is greater: Seatbelt use ↑
- Impact of Female > Male is greater: Companion ride ↓
- Impact of Female > Male is greater: Drunken driving ↓

# Disparity of Drunken Driving

| Influential factor on Drunken Driving | Concentration index |
|---|---|
| Quality of Drinks [QD] | 0.157 |
| Many types of drinks [MD] | 0.062 |
| Drinks and Drugs [DD] | 0.033 |

Cumulative % of QD, MD and DD




- Statistically significant levels are not presented.
- QD is a disproportionate concentration of drunk driving behaviors than MD and DR.

Cumulative % of population ranked by Drunken Driving Behaviors

# Implication and Conclusion [1]

- This study incorporates “Violent Risky Behaviors: drunken driving; companion ride; and non-seatbelt use” and “Risky Health Behaviors: binge drinking, cigarette smoking, marijuana use, and illicit drug use” to evaluate the effects of driving behavior among children and youth [12~22 years old].

- The result of the regression outcomes reveal that “Risky Health Behaviors” are positively associated with “Violent Risky Behavior, i.e. driving behavior”.
- “Drunken driving”, “Companion ride”, and “Non-seatbelt use” are positively associated with each other.

# Implication and Conclusion [2]

- The results of the concentration index reveals that “An increase in “quantitative drinking” is heavily and disproportionately concentrated on “of drunken driving behaviors” than “many types of drinking” and “a combined drug use and alcohol intake”.

- An important contribution to the literature is that we integrated the analysis with the finding that “drunken driving”, “companion ride”, and “non-seatbelt use” were all positively associated with each other.

- Females partake in less risky behaviors than males among children and youth [12~22 years old]. Females are more likely to follow the regulations than males.

# Implication and Limitation

- For **policy implications**, losses of human resources in young age groups due to traffic accidents needs to be prevented. Health education about smoking cigarettes or use of illicit drug use are imperative and a viable option at an early educational age. Thus, “Health education” improves their quality of life, prevents their loss of earning and producing in their future, and sustains their daily life to maintain its quality.

**Limitation:** the **1992** [16296 samples] National Youth Risk Behavior Survey had this rich and useful information for these analyses. However, **2017** [14684 samples] **National Youth Risk Behavior Survey** did not contain some socio-demographic and geographic information which did not allow us to evaluate useful policy evaluation, e.g. tax and regulation effects.

# Thank you very much.

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